Gleanings in Bee Culture

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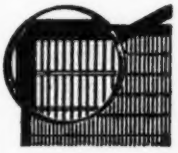

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Monthly HONEY Report

by Walter Barth

LITTLE 'ol Rhode Island appears jubilant over its honey flow while the rest of New England is hoping for more rain. However, bees in this area are generally in good condition and swarming is definitely not a problem. In some areas the spring hurricanes have done considerable damage to nectar plants, such as basswood, but the clovers escaped.

New England may be hoping for rain, but for New York the arrival of a cloudburst would be too late. Except for parts of the northern and southern tier counties, much of the bee pasturage in New York was burned up by the dry weather. Another exception occurred about Auburn in the Finger Lakes district where basswood yielded fairly well, and a normal crop is expected. Tulip poplar did not do well in New Jersey although a fair crop of amber honey was gleaned as a result of a good June flow. Rain is needed now if the fall honey plants are to prosper. While moisture is also needed in Pennsylvania, the sumac honey flow was quite heavy. Bees did get honey from crimson clover in Delaware, and now beekeepers on the Delmar peninsula are looking forward to the lima bean as it yields nectar from August until frost.

In Florida, orange and gallberry honey is bringing 13 to 14 cents per pound wholesale as a result of a short crop which will be quickly picked up by tourists and local packers. Throughout the south there seems to be sufficient rain and the outook for a crop is good. Only Florida continues to be dry. Sourwood is yielding well in South Carolina and Tennessee. The fall outlook also appears good in Tennessee where moisture conditions are fine for autumn honey plants. The market is generally strong in the south but there is little to offer except sourwood and remnants of a Florida crop.

In north central Ohio a better than average crop of basswood honey was harvested. Western Ohio expects two-thirds of a crop, and is hoping for something from late alfalfa. Dry Michigan needs rain badly although basswood yielded well in some areas. Rain at this time, could revive white Dutch clover. Wisconsin had plenty of rain, and a good crop of white honey was harvested in June but it is very high in moisture as a result of the humid weather. The picture is gloomy in parts of neighboring Minnesota where only half of a normal crop is expected. Recent rains will prolong sweet clover and that could save the day. In Illinois clovers are about ten days later than usual.

The honey market is strong in the Great Lakes states with wholesale lots of white honey bringing 12 to 15 cents; amber 10 to 14 cents; and comb honey about $8.40 per case. Five pound pails are selling for $1.00.

Nebraska and Iowa reported crops as high as 150 pounds per colony from basswood and white sweet clover. The outlook for South Dakota looks good for an alfalfa crop. Only a fair flow is expected in Kansas. Missouri is in the same condition but the outlook for a heartsease crop is the best in some five years or more.

Here too white honey brings 14 cents wholesale with no reports on amber honey. The five pound pail market is weak with prices averaging $1.00.

Eastern Colorado and Wyoming are generally good in spite of the drought. Second cutting of alfalfa and sweet clover are yielding well but this won't last long unless rain comes soon. Wyoming is looking for a 75 per cent of normal crop. Arizona, with plenty of moisture, had a fair flow from alfalfa, and hopes are high for a good cotton flow. In New Mexico the bees are in shape but the moisture is lacking.

California missed out on the sage crop after a short orange flow. The crop outlook in Oregon is still for only 50 per cent of a normal flow.

Summary: 1954 stocks of honey in producing areas and in consumer centers are among the lowest of recent record. The new crop is appearing slowly, especially in the southwest. Crop prospects for the country as a whole are much more encouraging than they were a month or two ago.

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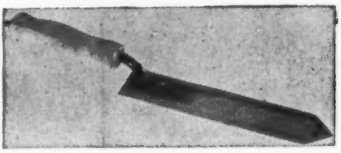

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Preparing bees for winter

LEONARD HASEMAN, University of Missouri, Columbia, Mo.

This apiary of Irvine J. Focht of Gibsonia, Pa. is well protected from the cold winds by a good windbreak and packing.

THE BEEKEEPER'S greatest single loss is due to faulty wintering of his bees. This is not generally known but it is true, and it is due largely to the beekeeper's own neglect in properly preparing each colony in advance of cold weather.

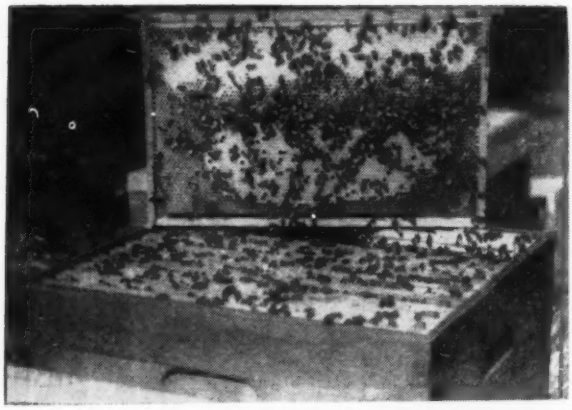
A Young Queen and Plenty of Young Workers Essential

To properly prepare a colony of bees for the winter it is important to begin with a young vigorous queen. If requeening is done in the spring, the queen is usually still strong and active for going through the winter, but many beekeepers prefer to requeen in August so that the new queen will be in the "pink of condition" for building up the colony for the winter.

The one disadvantage of requeening in August is the fact that spring-reared queens are likely to be stronger and better than summer-reared queens. It is essential that the queen be active late in the fall so that the colony will have a goodly number of young vigorous workers to start into the winter. Old worn-out workers die off with the first severe winter weather, while the young vigorous workers live through to start off the spring work when the queen begins to lay eggs to build up the colony. Each worker bee seems to have just about so much energy and if most of that is spent during the summer and fall in gathering nectar there is little of it left for use in helping to keep the colony warm during the winter. Make sure, therefore, that each colony has plenty of young workers reared late in the season.

Winter Stores

The next thing to consider is stores. Each colony must have plenty of winter stores and they must be of good quality. Many colonies of bees die because of insufficient good stores properly located for the use of the bees during the winter.



Colonies must be strong in bees and stores to winter successfully. — Photo by David Bone, England.

For winter stores, nothing equals a good grade of clear honey free of honeydew or other indigestible materials. Sugar syrup made from clean granulated sugar fed to the bees in the fall may be used where a shortage of stores exists, or it may be safely used to replace a poor grade of honey.

Amber honey from heartsease, Spanish needle, asters, goldenrod, and other fall plants, is entirely satisfactory for winter stores if it does not contain honeydew, or too much fruit or cane juice or other undesirable materials. The lighter honeys stored in the summer from white or sweet clover are considered better for winter stores by many beekeepers, but a good grade of fall amber honey is entirely satisfactory.

For safety an average strong colony should have from 50 to 75 pounds of honey for winter stores. They may use only 20 to 25 pounds of this during the winter, but when brood rearing begins in the spring, stores are used rapidly. If the spring is backward and bees get little or no new nectar before the white clover flow starts, the extra stores are important. It is much more desirable to leave on plenty of stores, than to be obliged to practice spring feeding. The bees will use only what they need so the beekeeper should not begrudge them plenty.

BESIDES PLENTY of good stores, it is important that these stores be properly located in the hive. The combs in the brood chamber should be practically full of stores when cold weather comes. Many beekeepers winter in a single brood chamber though some insist on also leaving on a full super. After killing frosts prevent further gathering of nectar there may still be considerable brood in the brood chamber and sufficient stores should be left in the supers which the bees may take below to fill the space as the brood emerges.

In case of a prolonged cold spell with perhaps sub-zero temperatures, the stores must be located so that the winter cluster may encircle a sufficient supply to last until the weather warms up again. In case the spring starts off early and the bees begin to rear brood abundantly and then it turns cold for a few weeks, surplus stores may all be used up and the bees must be fed promptly or they may starve.

It is seldom that a strong colony of bees with a young queen, plenty of young workers, and an abundant supply of good stores housed in a tight hive ever dies from winter exposure, but its strength may be seriously reduced by winter losses. A colony containing 50,000 to 60,000 bees in the fall is often so reduced that it may have only 10,000 to 15,000 workers left in the spring. Every effort should be made, therefore, to give bees proper winter protection to help reduce these winter losses. The best authorities are agreed that winter losses are more serious than any other loss experienced by beekeepers.

Windbreak and Winter Packing

To prevent winter losses from exposure, windbreaks and packing should be used. In selecting the apiary site it

is often possible to provide a natural windbreak in the form of a hill slope, hedge, board fence, or the like. The strong winter winds are more serious than the steady cold, since they tend to draw from the hive the heat produced by the bees in their cluster. A windbreak should be provided by all means, therefore, and some additional protection in the form of winter packing will help.

In a small apiary of only a few colonies, each hive may be packed in a goods box, or prepared packing cases may be used. With a large apiary of a few hundred colonies, packing is often considered impractical and some beekeepers claim that it does not pay, if a windbreak is provided. In such an apiary if packing is used it must be of a simple type which can be cheaply and quickly put on.

Leaves held in place with a strip of chicken wire around the hive and fastened with stakes driven into the ground in front of the hive is a simple and effective type of packing. Weighted boards, strips of tin or roofing felt, placed on top to keep the leaves dry will help. A sack of dry leaves placed in a shallow super above the bees will help keep the colony warm and take care of excess moisture in the hive. Roofing felt wrapped around and over and under the hive is also a practical protection for mild winters.

Cellar Wintering

IN THE FAR north beekeepers find that a properly constructed bee cellar is useful in wintering bees. Under Missouri conditions, all experience and careful investigations show that wintering bees in cellars is less satisfactory than wintering them on their summer stands with a windbreak, and preferably some packing.

Where a cellar is used the temperature must be kept reasonably constant so that the bees remain practically inactive but so that they do not cluster. The moisture must also be carefully watched. It is not a simple matter to regulate these conditions and then after it is time to bring the bees from the cellar we may get some severe weather, which proves serious to colonies which are not accustomed to such weather conditions. The labor and expense with the chance of serious mishaps does not justify the use of a cellar for wintering bees in Missouri.

Nature of Winter Losses

The serious nature of our winter losses has already been referred to. The loss of colonies outright as well as so-called spring dwindling, may be due to improper wintering. However, the greatest loss is usually due to the fact that colonies come through the winter so weak that they cannot be brought up to full strength in time for the honey flow.

The careful carrying out of these suggestions on preparing bees for the winter will go far to reduce these losses. Too many of our beekeepers are interested primarily in taking from the bees all they can possibly get without considering the best interests of the bees. Under such conditions winter losses are bound to occur.

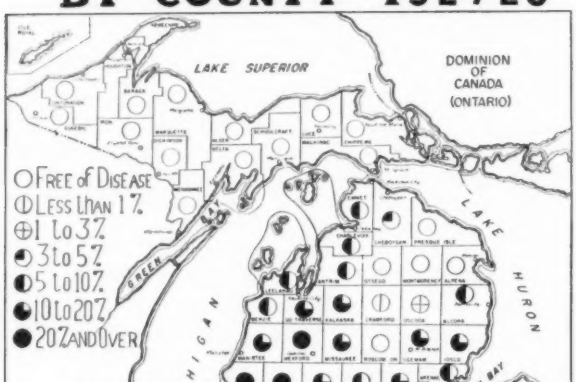
"I've heard you Cyprian bees were ornery ones."

History of American foulbrood in Michigan

Period — 1927 through 1954

DON P. BARRETT, Chief Apiarist of Michigan

AFB IN MICHIGAN BY COUNTY 1927-28



AT THE time apiary inspection was inaugurated on a state-wide scale in 1927, Michigan honeybees were found heavily infected with American foulbrood. The percentage of diseased colonies ranged from 20 per cent to as high as 60 per cent in some counties, with a state average of a little over 22 per cent, or nearly one colony in four being infected.

Following a vigorous state-wide policy of destroying diseased colonies by fire and disinfecting all used equipment connected with the apiary, the disease has been reduced to 2.5 per cent. Twenty-seven counties and several larger areas are now entirely free of the disease.

In 1927, records indicate there were almost 15,000 colonies found to be diseased in our state, or to be exact, 14,838 colonies.

To further emphasize the progress made in disease control since the early days of our state-wide program, I would like to mention conditions as found in one of our large fruit counties where bees are needed most. From a former bee population of between 4,000 and 5,000 colonies, in 1927, it was found that but a trifle over 200 live colonies remained in the entire county. Today the bee population of this same county is 3,535 colonies and this past season only 30 colonies were found in the entire county infected with American foulbrood, or 1.2 per cent infection.

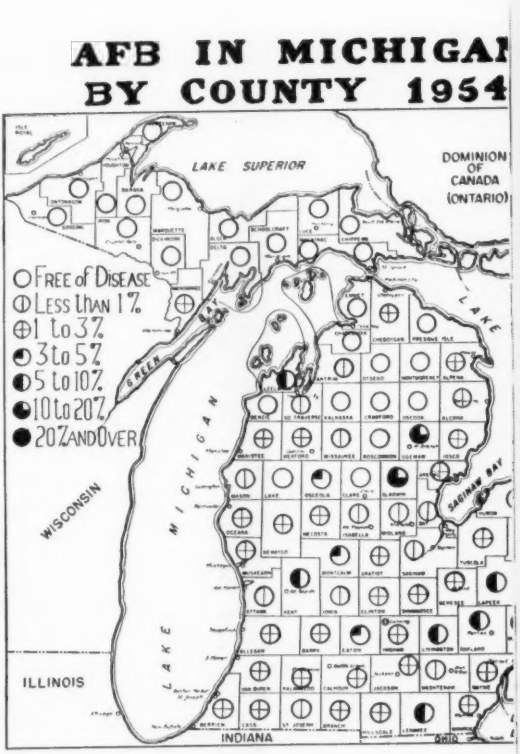
Recognition of the Department's bee disease control program is best shown through the financial cooperation received from our many County Boards of Supervisors. In the early years of apiary inspection only eight or ten counties cooperated in providing county funds to supplement the state ap-

propriation. Today there are 57 out of the 60 heavily bee-populated counties making annual appropriations totalling over $20,000.

Past results on a state-wide basis have shown that if it is possible to inspect between 55 and 60 per cent of the registered colonies and between 70 and 80 per cent of the apiaries, we can hold the gains which have been made and insure further progress in our disease control program. We have been fortunate in Michigan in being able to employ sufficient inspectors to meet these requirements, except for two seasons during the war years, when it was impossible to maintain an adequate force.

While the Michigan Apiary Law provides for the burning of diseased colonies found by our state inspectors, this does not mean the destroying of the entire hive. The bottom board, cover, brood, and super bodies are sterilized by the inspector with the use of the Aeroil torch. One of these torches, which delivers about 2000 degree heat, is an important part of the field equipment of each inspector.

There is no question that equipment which is contaminated can spread disease when it is used in operations of succeeding seasons. The Michigan Department of Agriculture's policy of issuing Sterilization Orders covering surplus beekeeping equipment which was contaminated through use in heavily infected apiaries has definitely been a contributing factor in preventing the recurrence of much disease.



Beekeeping in Ireland

Here are some of the styles of bee hives used in Ireland. Photo by Bro. Colman, Glenstal Priory, Munroe, Co. Limerick, Ireland.

Removal of bees from buildings and trees

G. F. TOWNSEND, M. V. SMITH
Department of Apiculture, Ontario Agricultural College

Fred Kerr, of Manitoba, is examining a hornet's nest.

NESTS OF BEES often become established in partitions of buildings, verandas and hollow trees. They may frequently become quite a nuisance, in which case it is desirable that they be removed or destroyed. The following methods are recommended for disposing of unwanted honeybee swarms or nests of wasps, hornets, or bumblebees.

Destroying the Bees

(a) **In Unoccupied Buildings:**

A quick and effective means of destroying nests of bees or wasps is through the use of cyanogas. This is a powerful poison sold in powder form at most drug or hardware stores. Inject a few teaspoonfuls of this powder into the nest entrance in the evening when all the bees are at home. All the bees in the nest will be overcome by the fumes within a few minutes. The following day tightly seal off the nest entrance or completely open the nest and remove the old combs to prevent other bees from re-establishing themselves in the same location. Cyanogas does not poison the honey. If there happens to be a surplus in the nest, it can be salvaged and used.

Caution—Cyanogas fumes are dangerous to inhale, and the greatest care shou'd be taken when using it. If possible work when there is no wind or keep to the windward side of the powder. In case of an accident, it is always wise for two people to work together when handling cyanogas.

Autumn frosts kill off the inhabitants of wasps and bumblebee nests. This is not so with honeybee swarms, however. Honeybees pass the winter clustered within the protection of their nest. To destroy honeybee swarms in the winter, simply tear the nesting place open and expose them to the frost. After the bees have died of exposure any honey remaining in the combs can be salvaged.

(b) **In Occupied Dwellings:**

Where it is unsafe to risk the use of cyanogas, bees can be destroyed with D.D.T. Obtain the 50 per cent wettable powder and dust or blow a few teaspoonfuls of this insecticide into the nest entrance. D.D.T. is a slow acting poison and will not kill the bees at once. This procedure should be carried out in the evening and may need to be repeated on one or two occasions before the bees are completely destroyed.

Non-inflammable cleaning fluid (carbon tetrachloride) is effective against the nest of the paper wasp. With a sprayer or a syringe direct some of the liquid into the nest entrance, then immediately stop the opening with a plug of cotton soaked in more of the same fluid. Although the fumes are not poisonous, they will quickly overcome the wasps. After several minutes cut down and burn the nest before its tenants revive.

This treatment should be applied only in the evening when all the wasps are in the nest. If the nest is interfered with during the day, many of the wasps will be out foraging for food. As these return, they may seriously sting anyone molesting their nest.

John Harley of Tulsa, Okla., is removing bees from a building.

Frequently nest entrances are near doors or window sills where they constitute a hazard to those entering or working around the house. In such cases where nest entrances are easily accessible, a very effective means of quickly reducing the bee or wasp population is as follows:

Make sure there is only one nest entrance. Place a few paradichlorobenzine or naptha moth crystals in the bag of a vacuum cleaner and hold the end of the vacuum tube close to the nest opening. A few sharp raps on the wall will bring the bees tumbling out and they will be sucked into the bag and overcome by the fumes. It is advisable to burn or bury the bag contents before any of the insects recover. This should be followed by the D.D.T. treatment, as described above, to destroy the few remaining bees.

The vacuum cleaner may also be reversed to blow D.D.T. into nest entrances which are readily accessible.

Transferring Honey Bee Swarms

Transferring does not involve the destruction of the bees. They are simply prevented from entering their original nest and are offered as an alternative home a standard hive. This method can only be carried out during the summer when the bees are active, and is best done under the direction of a beekeeper.

Procedure—Close up all flight holes of the swarm except one. Erect near the flight hole a platform large enough to hold a standard hive. Then fix a bee-escape over the flight hole. A cone of wire about six inches long, with an opening one-fourth to three-eighths inches in diameter at the apex will serve very well as a bee-escape. Now place on the platform a weak hive, consisting of two or three frames of brood and bees with a queen or queen cell. Arrange to have the hive entrance as close as possible to the original swarm

(Continued on page 510)

Beekeeping in Minnesota*

MYKOLA H. HAYDAK
Department of Entomology and Economic Zoology, Univ. of Minnesota, St. Paul 1, Minn.
and C. D. FLOYD
Supervisor of Apiary Inspection, State Department of Agriculture, Dairy and Food

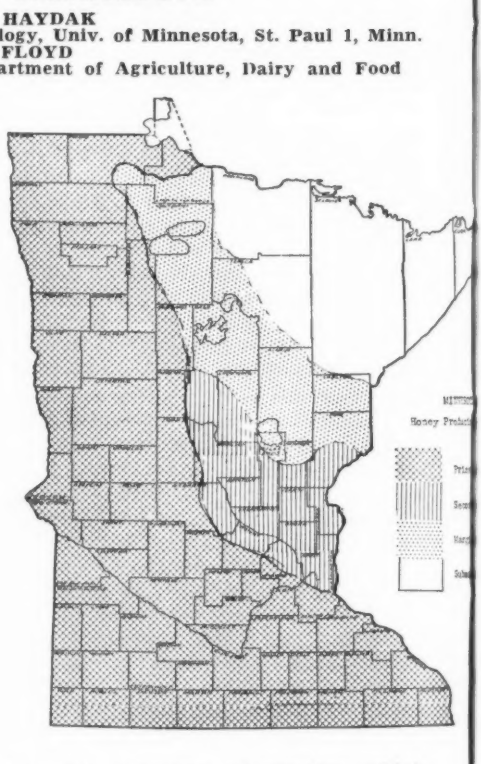
FOR A NUMBER of years Minnesota has been the second largest honey producing state in the nation, with a total of between 20 to 24 million pounds of honey produced annually. Colony production occasionally reaches 700 pounds. The average for the state, however, usually ranges from 85 to 95 pounds per colony.

The largest class of beekeepers in the state are small hobby beekeepers (48%). A considerable number of beekeepers (12-15%) have between 25-100 colonies. There are several dozen large commercial beekeepers owning between 1000-4000 colonies of bees.

A steady decline in the number of colonies of bees for the state is noticeable; there were 243,000 colonies in 1954, as compared with 284,000 in 1949.

The total area of the state is 84,286 sq. miles, of which the water surface area comprises 3824 sq. miles—Minnesota is famous for its lakes. There are close to 10,000 of them spread all over the state. Minnesota soils, formed from glacial deposits, are in general very fertile. Most of Minnesota land lies at from 1000 to 1500 feet above sea level; there are areas below 1000 feet elevation, mostly along the streams and rivers, and a few scattered locations with an elevation above 1500 feet. Although the state boundaries enclose nearly 54 million acres, well over one-third or about 20 million of these acres are timber and forest areas leaving about 33 million for farmland. This is, of course, not all bee pasture since only a portion of the harvested crop acreage, about 20 million acres, is devoted annually to clovers.

About 8 million acres is devoted to pasture, a good half of which is usually fair bee-pasture. Wood lots, usually useless as bee pasture areas, occupy about four and one-half million acres; frequently these are excellent sites for apiaries because of the protection



from the elements of weather which they provide.

For beekeeping, Minnesota has been divided into three areas. This division, introduced by Professor F. Jager, with some modification, still stands: **the coniferous region, the hardwood or clover region, and the prairie region.**

The northeastern **coniferous region** occupies almost half of the state. The soil is comprised of rough, stony land and grayish-brown soil of a sandy nature easily leached. Frequently the soils are slightly acid.

This region frequently is backward in the spring. Its annual precipitation usually averages 26 to 30 inches, much of it in the form of snow which, protected from the sun by the trees in spring, keeps temperatures lower. Alsike is found at its best here and, given a chance, grows everywhere. In places where fire destroyed large wooded areas, fireweed (**Epilobium**) grows abundantly for several years until it is

* Paper No. 898, Miscellaneous Journal Series, Minnesota Agricultural Experiment Station, St. Paul 1, Minnesota.

supplanted by wild raspberries which, with alsike, become the chief sources of honey until the underbrush takes over.

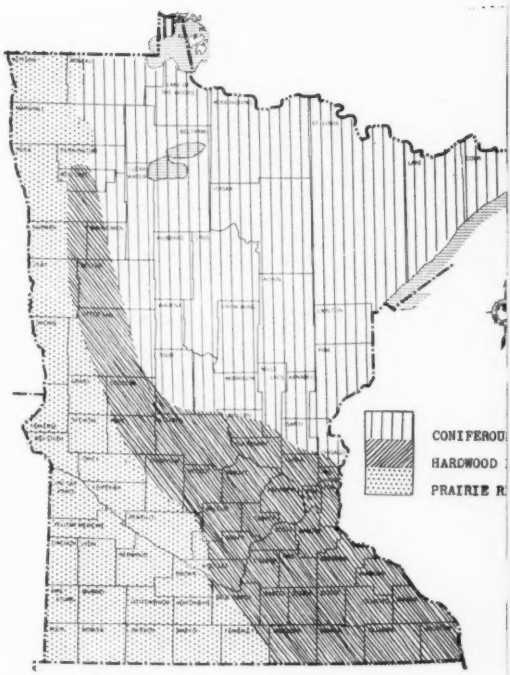
The hardwood region, or, as Professor Jager called it, the "Big Woods" is the most extensive in the southeastern part and gradually narrows to a point some distance south of the northern border. The soils of this region in general are less acid than those of the coniferous area. Undulating in nature, the terrain provides a variety of drainage levels and soil conditions.

MAPLES, elms, willows, dandelions, and orchard bloom are very important sources for the spring development of colonies. Cultivated raspberry bloom heralds the beginning of the main honey flow. White and alsike clovers, alfalfa and also sweet clover, both yellow blossom and white blossom, are predominant sources of surplus honey. In the years when it yields, basswood contributes greatly to an increased honey crop. Goldenrod and aster occasionally provide surplus fall flow or at least contribute to the winter stores.

The third—**the prairie region** lies along the western border of Minnesota. High lime and alkaline type soils characterize this region, ideally suited to the growing of sweet clover and alfalfa. These soils are usually level and practically every acre is tillable. Clovers are important in crop rotation programs and some clover seed is raised, both practices providing important bee pasture. The surplus honey crop comes chiefly from the sweet clover, which is especially abundant in the Red River Valley where it is raised for seed. Alsike and red clovers, alfalfa in southern part, as well as buckwheat in some places contribute to the increased honey flows.

In general, beekeepers have sought the high lime soils since they seem to yield crops easier. However, many successful beekeepers produce paying crops by maintaining small to medium sized yards in the principal dairy counties depending a great deal on permanent pastures.

Of course, there are some minor sources, such as milkweed, various thistles, wild mustard, sunflower, wild



plums, honey suckle, sage and others, which may be important in some localities.

Roadsides were an important pasture element in much of the state until the advent of the present weed control program. The mid-forties witnessed the advent of a very wide use of weed sprays.

Minnesota has over 10,000 miles of trunk highways, 150 feet wide, nearly 42,000 miles of State and County Aid roads 66 feet wide, nearly 56,000 miles of township roads 60 feet wide and about 8,500 miles of minor system which average 40 feet wide. If you exclude the traveled area on all these roadways, this system represents approximately 636,000 acres of potential bee pasture or **better than 205 acres of possible bee pasture for every colony.** Besides this there is over 12,000 miles of railroad with right of way up to 100 feet wide, averaging well over 100,000 acres.

The above mentioned properties comprise three quarters of a million acres of land, much of which did and could be good bee pasture abounding in many kinds of legumes both of soil

(Continued on page 508)

More shortcuts in queen rearing

GEORGE W. PHILLIPS, Sarasota, California

CONCERNING THOSE nurseries of virgin queens to which the bees have free access (see GLEANINGS—August 1954) the following suggestions may be added:

(1) These nurseries should not be placed in brood nests having laying queens.

(2) If placed in supers above queen excluders the virgins should be removed within 48 hours — 24 is safer.

(3) If these nurseries are placed in queenless colonies the danger to the virgins is further reduced.

As I said before, the busy queen breeder will at times find these "free access" nurseries quite convenient, especially during honey flows when bees are apt to cover cells solidly with comb and honey. Then the greatest care must be exercised in cutting out the ripe cells, taking surplus honey from the points of them so that emerging virgins will not be daubed, and removing enough of the overcast comb structure to permit the young queens unassisted, to cut their way through. By using the "free access" nurseries cells may be caged as soon as they are sealed and before the surplus comb becomes obtrusive. Bees will do the finishing after the green cells are caged.

But of course whether "free access" nurseries or the conventional full confinement types are used there is the added task of removing the young queens from the nursery to the introducing cages. This cannot be safely done in the apiary outdoors but the nursery must be taken to the closed beehouse and there the transference made. Where queens are reared in large numbers this is quite a job.

Fifty-two years ago when I was in charge of the Root queen breeding apiaries and handled virgins by the hundreds we found this a time-consuming task, so much so that those associated with me joined me in seeking to evolve a cage that would at once be a nursery and introducing cage. The nearest we came to it those days was a cage designed by one of my assistants, Mr. Abram Titoff. It helped, but left much to be desired. As nursery it was not as good as the one we were using, and as introducing cage it was far less desirable than the old Miller cage then in use.

Since those days, as a busy professional career permitted, I continued to give some thought to the designing of a cage that would meet all the requirements of both cages. Some of these I even described years ago. None was quite satisfactory. Now at last I think I have something that measures up.

Because it is used in connection with the cell block let me suggest two modifications of the same. First, I find the conventional cell block too small in diameter. It usually measures five-eighths inch across. I find three-quarters more satisfactory. The smaller cell block calls for a smaller nursery hole and this means too much paring down of the ripe cell to fit. Secondly, the conventional cell block is too short—three-eighths of an inch. This does not permit easy handling. In removing the ripe cell from the cross bar the grip is too precarious and there is even some danger of crushing the upper portion of the cell. While it may appear clumsy a three-quarter-inch block is more convenient. The grip permitted is positive and danger of shaking the ripe cell decreases.

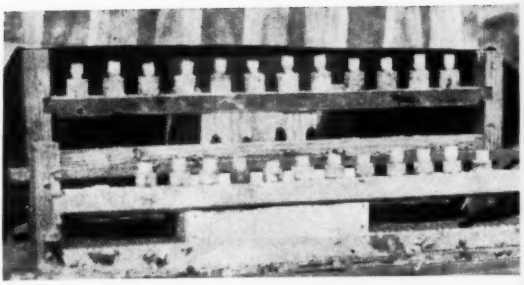
NOW FOR the cage proper: This is made of one-eighth inch hardware cloth, carries a three-quarter inch hole and is in length three inches. It receives at each end a plug of exactly the same size—three-quarter inch. The top plug carries the ripe queen cell. The bottom plug is bored for candy and may have over the hole a slide of tin that either covers the candy or swings aside to permit the bees to consume the same and release the queen.

There is then no transference of virgin queens from nursery to introducing cages. This cage is both.

Filled with ripe cells, cages are placed 12 in a shallow frame and given to a second story above the queen ex-

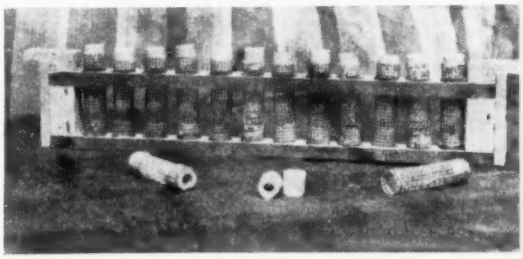
cluder. There they may be held for the maximum period until needed for introduction to nuclei. As the illustration shows, cross bars are bored to receive these cells. In the bottom bars the holes are merely countersunk.

To repeat: There is with this cage no transference of virgin from nursery to introducing cage. It comprises both



Showing relative sizes of cell blocks.

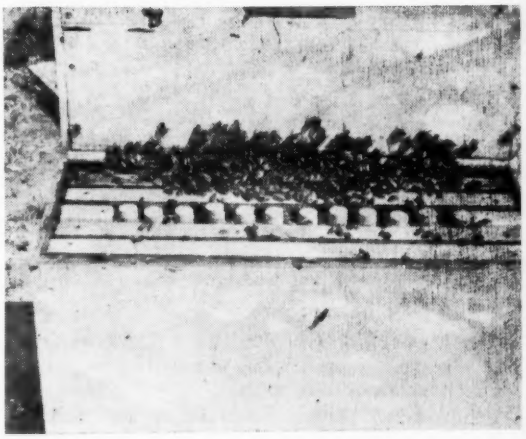
and impairs the efficiency of neither. The busy queen breeder will also appreciate the fact that it is not even necessary when a virgin is needed to remove the entire frame from its nesting. Just lift the hive cover and without touching the frame remove the cages with the young queens one by one as needed. If too many are taken



Assembly combined nursery and introducing cages.

out for current requirement replacement of queens not used is as simple.

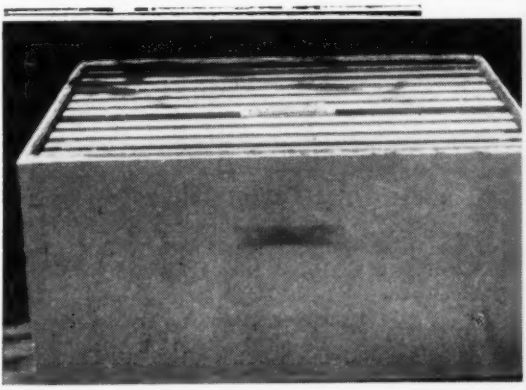
Now I can sense the objection immediately raised: This cage (about the same size as the West spiral wire cage) is too thick. It cannot, like the thin Miller cage, be let down between the frames. Such may be the objection. My answer is that letting down the cage between the frames is not necessary and often results in killing brood on both sides of the cage. Open the frames in the middle of the queenless hive and in the opening lay the cage on its side, just far enough down to prevent slipping through the opening.



Without removing frame, cages may be lifted out one by one as needed.

If the hive is properly made, enough room will be left so that the cover will not make contact with the cage. There will also be plenty of room for the queenless bees to "get acquainted" with their coming queen.

May I add this footnote? Many visitors —some from far-away places—reading these occasional articles of mine turn up at Seven Oaks expecting to see a large queen breeding establishment. I am sorry to say there is no such establishment. I have only a small apiary, devoted for the most part to experimental work. Because of the physical limitations of age I have had to reduce to minature the size of my apiary. Small though it be, however, it affords the gladness of creative effort and the added joy of honey production.



For queen introduction cage may be placed thus.

XUM

Effect on honeybees of aerial applications of DDT

W. L. COGGSHALL, J. E. DEWEY, and E. J. DYCE
Cornell University. Ithaca, N. Y.

Part II

(Continued from July)

This speed sprayer is blowing insecticides on to orange trees. The air blast is produced by a modified airplane propeller which rotates at high speed. Modern power applicators save time and labor and povide an efficient method for controlling insects.—USDA photo.

AS A FURTHER check on the effect of DDT in the formulation employed in aerial applications for the control of tent caterpillars or eradication of gypsy moth infestations, an acre of dandelions in full bloom was selected for treatment. A Lawrence Tree Sprayer was used to simulate aerial application, and 12 per cent DDT in oil solution was applied at the rate of .72 gallons per acre. The application was made on May 13th at 11:30 a.m., a sunny day, temperature 65°F. Three colonies in the field and one outside, placed early that morning, were flying heavily in orientation flights at the time of application.

Of 20 glass plates 8″ x 10″, 17 exposed in the one acre plot averaged 2.31 micrograms per sq. cm., and three check plates just outside the area averaged .07 micrograms per sq. cm. DDT.

One of the three colonies in the sprayed area, and the check colony outside the sprayed area, were caged immediately following the application. Plastic screen cages were used, covering approximately 250 sq. ft. Being six feet in height they enabled the bees to fly quite freely and to visit bloom.

The weather during and for four days following the spray application was favorable for active bee flight. The ground in front of each colony was searched each day for dead bees. Numbers of dead bees collected in this manner are shown in Table I.

Bees were collected from blossoms in both treated and check areas, and held in cages in the laboratory to determine the effect on length of life of any DDT picked up from visits to blossoms. This data is recorded in Table II.

TABLE I — Number of Dead Bees Found in Front of Colonies in Check and Treated Areas.

Date		May 13	14	14	15	16	Total Dead Bees
Hours after treatment		5	20	28	48	72	Total for 72 hours
No. of dead bees in front of colonies	Caged colony in treated area	19	8	5	1	0	33
	Uncaged colony in treated area	14	5	6	5	3	33
	Uncaged colony in treated area	13	13	3	9	3	41
	Check colony in cage	0	3	0	2	2	7

Table I shows that some bees were killed by the DDT application, but the number is small. After 72 hours the number of dead bees does not appear to be greater than that which may be found in front of normal colonies. DDT did no apparent harm to the colonies aside from the small number of field bees which were killed outright.

To determine the effect of spraying bees directly with a solution of DDT in oil, two plastic screen cages, each covering approximately 250 sq. ft. and 6 ft. in height, were used. Each cage contained a normal colony of bees placed there approximately two days previously. Tar paper covered the ground under each cage to facilitate the recovery of dead bees.

On May 25th the bees in one colony were shaken from the combs into an open top strawboard box, and sprayed with 7 ml. of 12 per cent DDT in oil. The bees in the other cage were shaken out similarly, but no spray was applied. The bees of the sprayed colony appeared to be completely demoralized, although part of those which did not fly into the air after being hit by spray gradually crawled into the hive. On May 26th there were 14,402 dead bees collected from the cage containing the sprayed colony, and 690 dead bees from the other cage. Most of the dead bees from the unsprayed colony are thought to have starved or died from exposure on the walls of the cage instead of returning to the hive, as bees flying normally from a colony usually do.

The sprayed colony was estimated to have lost between one-third and one-half of its total adult population. There appeared to be no damage caused to the brood which continued to emerge in normal fashion. The queen was also apparently uninjured as she continued to deposit eggs. There were enough of the adult bees remaining to care for the brood, none of which was found dead.

Discussion:

DEAD BEES in sufficient numbers to warrant analyses could not be collected following aerial applications of six per cent DDT to maple groves. Because of low temperatures prevailing at the time of application bees were not flying. Maple bloom was rare or absent, and other blossoms were not plentiful although bees actively visited wild flowers present in one sprayed grove a few hours after spraying. No harmful effects were noted, and it would appear that under similar conditions, little damage to honeybee colonies may be expected.

TABLE II — Mortality of Bees Collected from Bloom and Held in Small Cages (4" x 4" x 7½").

No. of bees collected	Date of collection	No. of Hours After Spraying	No. of bees dead each 24 hour period Hours ½	24	48	72	96	120	144	148	192
25 (exposed)	May 13	5	0	1	2	5	9	15	24	24	24
25 (check)	May 13	5	0	0	0	3	6	10	13	15	18
50 (exposed)	May 14	24	0	1	1	7	23	40	44	47	48
50 (check)	May 14	24	0	2	10	23	41	41	48	48	48
50 (exposed)	May 15	48	0	0	0	21	23	45	46	46	49
50 (check)	May 15	48	0	1	2	22	34	40	42	44	48
25 (exposed)	May 16	72	0	0	0	4	7	16	25		
25 (check)	May 16	72	0	0	1	2	5	6	20	24	24

XUM

Application of DDT in an orchard in which a commercial apiary was located apparently killed appreciable numbers of bees which flew through the cloud of spray. Those dying within 48 hours after application contained 4.85 p.p.m. DDT, while those dying from 48 to 72 hours after application contained 2.94 p.p.m. DDT. Most of the loss occurred within 48 hours, and while it probably did not amount to more than 1,000 bees per colony this would be considered serious by the average commercial beekeeper.

DDT at a 12 per cent concentration accounted for a small loss of adult bees following application during weather conditions suitable for bee flight and with blossoms of dandelion and yellow rockett open and receiving bee visits. Dead bees collected five hours after the application contained 8.90 p.p.m. DDT. Dead bees collected approximately 29 hours following application contained 4.20 p.p.m. DDT. All dead bees collected were probably not killed by DDT, and possibly a smaller percentage of them after the longer period of time. The reduction in p.p.m. of DDT also indicates a slower death rate. Too few dead bees could be collected thereafter to permit accurate analyses, indicating that most of the loss of bees occurs within the first 24 hours, with little damage to be expected after 48 hours.

Colonies located in a one acre plot of dandelion and yellow rocket in full bloom prior to the application of DDT did not appear to suffer from either the application or from visiting sprayed blossoms. While a small number of adult bees died the loss could not be considered serious. Bees which actually visited sprayed blossoms lived only slightly less time than those which had not visited such blossoms.

A colony of bees sprayed directly with DDT in oil was not killed outright although 14,000 bees died. This colony survived, but was incapable of gathering a crop of honey.

It may be concluded that while DDT is actually toxic to honeybees it is a relatively safe insecticide to use under practical conditions. It has been demonstrated that under the conditions of the experiments conducted in 1954 that little loss could be attributed to DDT. It is impossible to control all conditions during experiments of this kind, but from the work just reported DDT is not considered to be extremely hazardous to honeybees. There was no opportunity to obtain data on the effect of these applications on other beneficial insects.

Analytical Notes:

Samples of bees ranging in size from one to forty grams, were macerated with benzene and isopropanol in a ratio of 1:5:2.5 (gms. sample:mls. benzene:mls. isopropanol) in a Waring Blender. The extracts were allowed to stand for about twenty hours, and were then filtered to remove any solid material. Compounds interfering with the analysis were removed by passage of the extracts through columns of activated alumina (1). Extracts not responding to the alumina treatment were evaporated to dryness at room temperature, the residues taken up in carbon tetrachloride, and the interferences removed by acid-celite columns (2). The eluates (washings) from the column treatments were analyzed for DDT by a modification of the Schechter method (3,4). The usual blanks, recoveries, and untreated samples were run simultaneously with the treated samples.

It was found that for reasonably accurate analytical work a minimum of 100 bees should be available, and that 200 to 300 or more is a much better number.

(1) Norton, L. B. and Schmalzkreidt, B., Anal. Chem., 22, 1451 (1950)
(2) Davidow, B., J. O. A. C., 33, 130 (1950)
(3) Schechter, M. S., et al., Anal. Ed., 17, 704-9 (1945)
(4) Downing, G. and Norton, L. B., Anal. Chem., 23, 1870-1 (1951)

Our Cover Picture

FOR THE FIRST time in 21 years as Editor of Gleanings, M. J. Deyell, appears on the cover. Readers now have the chance to see the Editor, whose writings have become so famous. Jack has just checked the scale hive which gained 13 pounds in one day. Photo by J. W. Buchanan.—W. Barth.

the HISTORY of BEEKEEPING

GEORGE P. GEORGHIOU, Nicosia, Cyprus

Part VIII

(Continued from July)

1937 A.D.—O. W. Park, F. C. Pellett and **F. B. Paddock,** established that the resistance of A.F.B., is hereditary. This marked the beginning of extensive investigations by the U. S. Department of Agriculture, and others on the subject of disease resistance.

Death of **George W. York**, editor of "Bees and Honey". Once editor of the "American Bee Journal" (see 1920).

1937-8 A.D.—E. Oertel, U.S.D.A., Louisiana, proved that if the colony is not preparing to swarm, the virgin queen usually makes a "Prenuptial" orientation, as well as mating flight (S).

Publication of the "History of American Beekeeping" by **Frank C. Pellett.**

Publication of "Honey and Your Health" by **Bodog F. Beck,** M.D. This book presented a historical and nutritional commentary on honey.

"ABC & XYZ of Bee Culture" translated into Russian. This edition is now a rare collector's item.

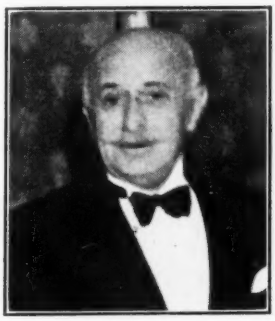
1939 A.D.—Ilse Korner (Germany) states that a bee that has been trained to visit a source of food at a particular hour sits in some remote corner of the hive during the remainder of the day, and takes no notice of the activity of the other bees (see 1943).

Invention of the Stoller uncapping machine by **Irvin Stoller** of Latty, Ohio.

1941 A.D.—Modification of the two-queen system, by **Dr. W. E. Dunham** of Ohio State University.

1942 A.D.—Death of **Bodog F. Beck.** Advocate of bee venom therapy and honey as a health food.

When the second world war started, manufacturers of all soft drinks began to use honey due to sugar shortage. Bakers and candy makers followed suit.



Dr. Bodog F. Beck

Publication of "Stingless Bees (**Meliponidae**) of the Western Hemisphere" by **Herbert F. Schwarz** as a bulletin of The American Museum of Natural History, New York, N. Y.

The period of the greatest demand for honey ever experienced in the United States.

Publication of "The Skeleto-Muscular Mechanisms of the Honey Bee" by **R. E. Snodgrass** (see 1925).

Publication by the Cornell University Press, of "The Life of Langstroth" by **Florence Naile.**

1943 A.D.—Butler et al (England) showed that bees remain fixed to areas as small as five yards in diameter, for several days (see 1946).

Formation of The American Beekeeping Federation at Chicago, Illinois.

A 12c ceiling on honey in carloads was set by the Government Office of Price Administration in the U. S.

Order M-118 was issued, in the U.S., limiting the use of honey by all individual users to the amount used in the corresponding period of 1941.

Revision of the U.S. Standards for Grades and Extracted Honey.

After nine years of scientific line

breeding for resistance, inaugurated in 1934, **O. W. Park** writes in the American Bee Journal: "While the final goal—a strain that will breed true—has not been closely approached as yet, the proportion of this stock which shows a high degree of resistance is considered sufficient to warrant its propagation, distribution and use as a helpful tool in a victory campaign against A.F.B. disease-resistant stock should not be considered a cure-all and use in no way justifies any beekeeper in assuming that his troubles with disease will evaporate on introduction of queens bred for resistance".

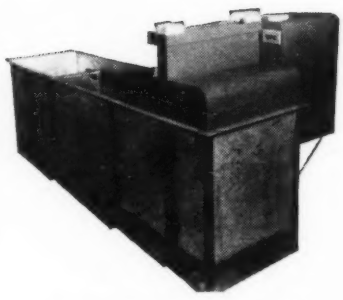
1944 A.D.—Dr. H. Laidlaw, working on the artificial insemination of queenbees, called attention to the fact that a structure known as the valvefold normally occludes direct entrance from the vagina into the median oviduct. The valvefold is extremely important in order to achieve successful inseminations. After this discovery, improvements in the insemination apparatus proceeded swiftly, and some very efficient instruments have been devised by Roberts and Mackensen, of the U.S.D.A., and Laidlaw of the University of California.

Introduction of the Sulfa treatment for American foulbrood by **Haseman** and **Childers.** (Missouri, U.S.A.).

1945 A.D.—Mackensen (U. S. A.) discovered that two treatments with Carbon dioxide would stimulate the queen to begin oviposition promptly whether inseminated or not. This discovery was an important contribution to the technique of artificial insemination of queen bees, and recent instruments have included provisions for administering this gas to the queens.

1946 A.D.—O. W. Park summarizing his work on "fidelity of occupation" of bees, says that a bee accustomed to carrying pollen from a plant that produces no nectar, such as corn, rarely leaves the hive after her particular kind of pollen ceases to be available for the remainder of the day, and remains faithful to her occupation for days together.

1946 A.D.—The Beekeepers' Item was purchased by the Walter T. Kelley Company, now of Clarkson, Kentucky. Four months after the purchase the name was changed to MODERN BEEKEEPING.



The Bogenschutz automatic uncapping machine

Karl von Frisch (Germany) has demonstrated that a colony maintains a force of scout bees which fly around in the surrounding area and bring back news of available food. The information is transmitted to the other members of the colony by the performance of a round or wag-tail dance (according to the distance of the source of food). The direction of the locality in the case of the wag-tail dance, is indicated by finishing each round of dance at an angle from the vertical, equal to the angle of the source of food in relation to the direction of the sun. Information on the type of food is communicated by making available some of the food, as well as by the scent adhering to the body.

1946 A.D.—Development of the **Bogenschutz automatic uncapping machine** by the Bogenschutz Brothers, Clayton, New York, (U.S.A.).

1947 A.D.—R. H. Roberts found that Delicious apples make a good fruit set where grown adjacent to varieties that make good pollinators for it (see 1950).

Publication of "Poems of a Beekeeper" by **Everard Stokes.**

1948 A.D.—Fyg (Switzerland) investigated 1280 queens sent by various beekeepers to the Liebefeld Institute at Berne. He found 50 different diseases and anomalies of queens besides those 12 already known in the literature.

1949 A.D.—U.S. Congress approves price support for honey at 60 to 90 per cent of parity.

(Continued on page 509)

Meet the champions: Miel Carlota!

ROBERT B. WILLSON, New York City, N. Y.

Part III

(Continued from July)

IT WAS a great sight to see one day last November 29 men at work in the honey house at the peak of harvesting all engaged at the same time in the extracting operation which has a capacity of 10 metric tons (22,000 pounds) per hour. This honey house has to be seen to be believed.

It is built on a hillside, the front 70 feet wide showing three levels, the rear five levels. On the side, which is 119 feet long, there are three truck entrances at three levels and there is a fourth truck entrance in the rear. This makes only the top floor inaccessible to truck delivery, so here are stored the lighter materials such as empty cans and cartons that are easily carried up.

The construction is of the finest. The columns and beams are of corrugated iron wired together and filled with concrete. The walls are made of brick overlaid with stucco. The floors are all cement carefully pitched for drainage for quick flushing with water of which they have an abundance. The windows are plentiful, affording ample light and are of glass with steel framing.

We can hear the American commercial honey producer say that the cost of labor and materials in the United States being what they are, and the selling price of honey being what it is, does not permit of any such honey house construction here, and that doubtless is true. Labor and material costs in Mexico are much less, but honey is a world commodity and subsidies and tarriffs removed and freight considered, honey of equal grade sells for the same price in Hamburg as it does in Los Angeles, Buenos Aires, Cuernavaca, or Genoa, and in terms of Mexican economy, honey prices have been good. Since most of Miel Carlota's production goes for export, it was with an eye on the requirements of that trade that the honey house was designed.

From the time the honey reaches the honey house in the combs until it leaves packed up, no honey is pumped. It is all moved by gravity and no honey is heated more than 86 degrees F. and greater heat is used only on the cappings and on other wax operations. Preparation of honey with such a low degree of heat is due to the justifiable insistence of German honey buyers and certain others in Europe, that overheating robs honey of some of its wholesomeness. They test by determination of the presence of diastase which is begun to be destroyed at 40° C (104° F.) and the presence of furfurol, which is like caramel and is generated from the levulose of honey by overheating. Running the temperature of honey up to 79° C. (174° F.) gives honey a highly caramelized or burnt flavor.

The emphasis the Germans place on overheating is reflected in the visit to this country early this year, at considerable expense, of Dr. Herwarth Duisberg, Director of the Western Germany Honey Research Institute in Bremen, at the invitation of the University of California, reported elsewhere in the bee journals.

THE HONEY comes in by truck, the bottom of each column of supers equipped with a tight fitting tray-like arrangement to hold any honey that might drip out of the combs as it comes along from the apiaries over the mountain roads. Mr. Wulfrath estimates these trays save about 20,000 pounds of honey a year. The same kind of trays which are of heavy weight are used also to cover each column of supers to protect them during transportation against sun, heat and dust from the highway.

The supers are unloaded at the highest level, moved to the extracting floor by conveyors and piled up alongside the uncapping trough. For each man uncapping there is a concrete block over which the supers, one at a time, are placed—dislodging the combs upward and making them readily available to the operator.

XUM

A view of the extracting room; the trough for uncapping is just beyond the extractors.

The uncapping is done by electric knife over the trough holding full-depth hive bodies on the bottom of which is wire screen of four mesh to the inch, allowing the honey to drain out which goes on for 12 hours. The cappings are then whirled dry in the extractors.

The extracting is done with a battery of six 50-frame extractors plus one 8-frame extractor, the latter for the few larger sized combs that may need extracting. The honey runs from the extractors to the same trough that takes the honey from the cappings, and from this trough it runs by gravity to the floor below into a unique clarifying system that is their pride and joy.

The system consists of the settling out of this honey without heating to more than 86° F., and straining in a battery of three tanks, the first one of 11,000 pounds and the other two of 33,000 pounds capacity each. Before the honey goes from the extractors into these honey tanks, it flows through a heated tank, thermostatically controlled, which brings all honey that flows through it up to 86° F., so as to get the honey fluid and free-flowing. The tanks are about two feet off the floor, of heavy sheet steel construction, about three feet square in cross section. Each tank has inside six compartments. The honey flows into the first compartment and can flow immediately through an opening near the bottom to the second compartment, but in the second compartment only into a small walled off triangular section into which the honey rises simultaneously just as it does in the first compartment. The wax particles start at once to rise to the top and the clarifying honey settles to the bottom. This process is repeated in the third, fourth, fifth and sixth compartments, and in this way the underpart of the mass of the honey becomes clearer and clearer, only the clearer honey flowing into the succeeding compartments through the opening at the bottom of each tank and which cannot pass to the next compartment until each tank is half filled up.

THE FINAL product is beautifully clear and clean. Ninety per cent of it is packed in lithographed cans (photo) ornamented with brilliant red flowers, the firm's name and address. These

cans are encased singly in heavy fibre cartons printed in the same manner as the cans and are ready to be taken to Vera Cruz harbor for export.

What about the quality of the honey itself? Does it justify all this effort and investment? The fact is that this honey not only is of delicious flavor and excellent body but has a unique characteristic. Soon after extracting it always crystallizes out into a solid mass as yellow and smooth as butter. The trade is already calling it "butterlike" and the demand for it is so great that you are just lucky if you get any of it for here is a honey that looks and spreads like butter and has the deliciousness of a honey of extraordinarily fine flavor. We have been there in November at the height of the harvest and seen the letters and cables from Europe, no one quite understanding why he could not have more or at least some of this wonderful honey. The demand far exceeds the supply—a nice position in which to be.

The flowers that make this extraordinary honey are two. One, the wild sunflower called acahual, a many branched member of the **Compositae,** six to ten feet high with flowers as big as silver dollars and which make whole mountainsides yellow in October. The other is a high growing vine with small greenish white flowers called chayotillo. Mesquite, guamuchil, and guisachil are other good honey plants.

Will they produce more? Perhaps yes—and maybe a substantial amount more for an interesting reason. They find that operating 12,000 colonies from one central honey house has not yet reached its limitation in the cost of time and transportation in going to and from the apiaries. There is room for perhaps a few hundred apiaries more in the same area that they are now working. They are filling in apiaries between yards already established so that on each highway and secondary road there will be an apiary of about 50 to 60 colonies on each six-tenths of a mile. They have experimented many times in different localities and found that the bees range profitably up to about 400 yards from the hive. They have found also that they can go farther away from Cuernavaca than they do now. Before feeling seriously the law of diminishing returns they believe they can go another 20 miles from Cuernavaca, or a total of 70 miles which will open up within their own concentrated area great new territory for honey production.

They may get more honey in very heavy crop years, or because more beekeepers bring them their honey to extract and buy since almost all the small beekeepers in the area do that now rather than go to the expense or bother of extracting and marketing themselves. This Miel Carlota likes because they manufacture bee hives and foundation, and raise queens. Those who bring them their honey are always good customers for supplies and the example of their own success is such that beekeeping is gaining greatly in popularity. As a result, their shop recently was expanded to turn out 200 complete hive bodies a day, and their foundation plant which up until now produced only 500 pounds a day is being reconstructed to turn out on an "automatic" basis, 3500 pounds a day.

IF THESE figures seem a bit on the fat side, take a look at the map of Mexico. From Guatemala on the south which is well proved good honey country, to far up into the north of Mexico, a distance of about 1600 miles, like from Washington, D. C., to Cheyenne, Wyoming, there is with minor exceptions no modern commercial honey production, yet probably all of it is just as good potentially as the relatively tiny area about Cuernavaca that last season produced 2,500,000 pounds. The manufacture of hives and foundation as well as the production of honey in Mexico are merely in their infancy!

Royal Jelly

Miel Carlota has pioneered the development of this amazing substance in the Western Hemisphere. The first word, of course, came from Europe, so, equipped as they are to produce queens on a larger scale, they quickly trained the pretty Indian girls who had been doing the grafting in their queen yard how to collect Royal Jelly. They worked in conformity with Mexican Government regulations and in collab-

Mr. and Mrs. Wulfrath in their attractive living room.

oration with the medical profession to test out with human beings the value of this old apiarian product in a new field.

What they have done is a separate and fascinating story which space does not permit to be told here, but perhaps their success in sales can be illustrated by this: On one day, Sunday, February 20th, 1955, when we were there, people came to Miel Carlota for Royal Jelly by Cadillac, Ford, and on foot, and took away in capsules and in face creams 10,000 pesos worth which in our money is $800.00. They are producing two pounds a day now but state they can increase to 60 pounds if necessary.

The Encyclopedia

We shall close this narrative by relating still another phase of the nature of these men that is significant. Runing an operation such as we have described with 12,000 colonies of bees, a huge queen-rearing establishment, an export honey business, and the manufacturing of bee supplies, should be about enough for any two men. But no, not for them! They have to get out an encyclopedia of beekeeping for Mexico! This, of course, is most praiseworthy for books written in foreign lands always need interpreting in terms of local conditions. There is no handbook of beekeeping for Mexico so **they** are writing it. As a subject is covered, it is printed in pamphlet form—beautifully illustrated and printed. Half of it has been completed and in about one more year, they will issue the first edition of what is destined to be the guide for the crop of 100 million pounds that some year soon Mexico is bound to produce.

WHERE DOES this energy come from? From many places. They are blessed with it naturally, but in part it comes from their enthusiasm for beekeeping which is boundless. Let's illustrate!

One night last November, extracting was not completed until 11:00 P.M. It was bedtime. Everyone had been up early and this reporter had been to a number of outyards to witness the delightful operation of removing supers from hives from which supers had been removed only five days before. However, instead of to bed, we retired to the Wulfraths' magnificent living room

(Continued on page 509)

For August days

MRS. BENJ. NIELSEN
Aurora, Nebraska

Serve honey bran pineapple juice bread with cheese spread. Photo courtesy Kellogg Company.

IT IS a hundred in the shade and no shade! Could not be better for those industrious little creatures bringing in Nature's golden sweet, but a bit trying for mere mortals—and especially the cooks. Right now honey is a real boon, furnishing that quick energy so sorely needed by heat-weary bodies. So be sure to have plenty of honey-sweetened lemonade on hand for thirst-quenching at all times. Make honey available for coffee and tea sweetening, both hot and iced. Honey ice creams awaiting in refrigerator trays are ideal, and do give them an added filip by topping with mild flavored honey.

The recipes chosen this month produce a maximum of satisfaction with a minimum of energy.

Honey Bran Pineapple Juice Bread

One cup bran, 1 cup unsweetened pineapple juice, 2½ cups sifted flour, 3 teaspoons baking powder, 1 teaspoon salt, 2 tablespoons shortening, 1 cup honey, 1 egg, and ¾ cup chopped nutmeats.

Combine bran and pineapple juice; let stand until most of the moisture is taken up. Sift together flour, baking powder and salt. Blend shortening and honey; add egg and beat well. Stir in bran mixture. Add sifted dry ingredients together with nutmeats, stirring only until combined. Spread in greased 9½x5¼-inch loaf pan. Bake in moderate oven, 350 degrees F., about 1 hour. Yield: 1 loaf.

Spicy Honey Coffee Cooler

Twenty whole cloves, 1 stick (5-inch) cinnamon, ½ cup coffee, 7 cups water, ½ to ⅔ cup honey, 1 cup cream, whipped, 2 tablespoons honey, and powdered cinnamon. Add whole cloves, stick cinnamon, and coffee to water and brew as usual. Strain and add honey, mixing well. Pour into tall glasses half filled with crushed ice. Top with cream whipped and sweetened with remaining honey. Dust with powdered cinnamon. Serves six.

Frozen Honey Fruit Salad

One cup mayonnaise or salad dressing, one 8-ounce package cream cheese, 2 tablespoons honey, 1 cup diced pineapple, 1 cup diced apricots, 12 maraschino cherries, chopped, and 1 cup cream, whipped.

Gradually add mayonnaise or salad dressing to the cream cheese, blending until mixture is smooth. Add honey and the well drained fruit. Fold in whipped cream. Pour into mold and freeze until firm. Unmold and serve with salad dressing. Serves six.

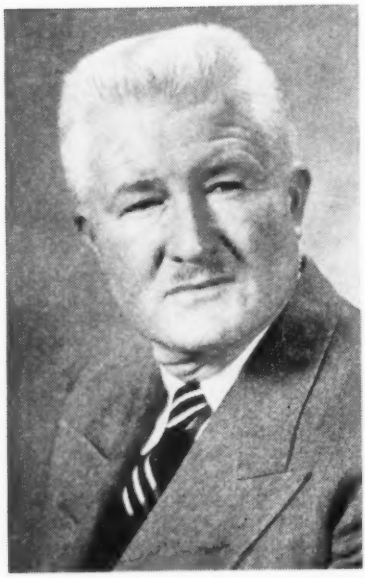
Honey Orange Pork Chops

Four pork chops, one-inch thick, 1 tablespoon flour, ½ teaspoon salt, 1 tablespoon fat, 1 tablespoon honey, ⅛ teaspoon nutmeg, 1 cup orange juice, and 1 orange, sectioned.

Sprinkle chops with flour and salt. Brown in hot fat in skillet. Combine honey, nutmeg, and orange juice. Pour over chops in skillet. Cover and cook over low heat for 45 minutes. Place orange sections on chops. Cover and heat five minutes longer. Serve with mashed potatoes and a green salad.

How many can you identify?

See page 504 for correct answers



1. .....

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FROM Foreign LANDS

Translated and Edited by Erika Barth

How Much Water do Bees Drink?

IN AUSTRALIA where large apiaries are the rule, an apiary of 240 colonies which was moved on to a gum flow, had to have water carted to the drinking troughs in the apiary, the bees being too far away from the nearest source of supply. Though the amount of water used by the bees varied with the amount of nectar coming in, it averaged about ten 60-pound cans of water a day for the time the bees were on the gum flow.

Water would be lost by evaporation and other causes, but in the main the bees had most of it. The toll of bee life it would take if the bees were forced to fly, say, half or three-quarters of a mile to reach the water supply would be hard to estimate.

BEE WISE. June 1955. Pg. 5. Issued by the Apiary Branch, Dept. of Agric., Vernon, B. C., Canada.

History of Beekeeping

MR. ROBERT N. TWEEDY has written a series of articles on beekeeping history called "Views of our Forefathers". The author takes a different but interesting slant from that of George Georghiou, who is currently writing the beekeeping history in Gleanings. Mr. Tweedy emphasizes beekeeping books that have been written through the ages. Collectors of beekeeping books will find the series of articles which started in January, quite interesting.

The Irish Beekeeper. Vol. 9. 1955.

Eucalyptus Yields Heavily

DURING February and March, one of the greatest honey flows witnessed by Victoria, Australia, beekeepers poured from the flowers of Red Stringybark (**Eucalyptus macrorrhyncha**) into many thousands of beehives situated throughout the foothill forests of Northeastern Victoria. The intake was so heavy that many apiarists were unable to harvest the honey. Good hives with a bee population of 60,000 or more, filled to overflowing in four to six days, and as extracting would take eight to ten days, much honey was lost because bees had no space in which to store it.

More fortunate beekeepers with modern plants and ample labor, report returns of up to 200 pounds of honey per hive during the six-week blossoming period. Apiarists cannot recall such a uniformly heavy flowering on any species of eucalypt. The flowering extended in a belt from five to 70 miles wide, starting just north of Melbourne to well into New South Wales. At its best, Stringybark blossom on the sides of hills showed up white for miles.

Heavy Honey Flow from Red Stringy Bark. J. Agriculture, Victoria. May 1955 Pgs. 224 & 226.

Pollen for Pregnant Women:

A FRENCH WOMAN reports in GAZETTE APICOLE that she developed severe varicose veins during her eighth pregnancy. During the last four months she started to eat pollen regularly and the varicose veins as well as other ailments disappeared. After a normal delivery she regained her strength fast. The baby received pollen in his milk and thrived. Unfortunately, no mention was made from which plant the pollen was derived and the amounts taken.

Gazette Apicole. Sept. 1954.

Bees in Ancient Egypt

BEE CRAFT, the official organ of the British Beekeepers' Association, is devoting a number of issues to review a book called "Beekeeping Scenes in Ancient Egypt". Original drawings are being reproduced. Here is another "must" for beekeeping historians.

Bee Craft. Vol. 37. 1955.

Editorials

Don't Give Away Your Honey Crop

IT IS ALL right to pass out some samples of your honey or give some to friends, but we have reference to what sometimes happens when beekeepers secure a large crop of honey. Apparently some beekeepers are afraid they may not dispose of their crop, so proceed to offer it for sale at a ridiculously low price.

In some instances a beekeeper undersells his neighbor and this neighbor then cuts prices to undersell his neighbor.

Beekeepers should know that the selling price of any commodity is based on three things, **cost of production, cost of selling,** and **margin of profit.** If the margin of profit is not included in the selling price the beekeeper is doing business for nothing and losing money.

If perchance a commercial honey producer is unable to move his crop immediately after it is produced and needs money to buy bread and shoes for the family, he can secure a loan from the local office of Commodity Credit Association, to tide him over until the crop is sold.

It costs money to produce honey now-a-days. Honey is too fine a product to be given away. Beekeepers are entitled to a fair margin of profit.

Bees Crowded Out of Suburban Areas

TOWNS AND CITIES over the country are expanding rapidly nowadays. For example, on the outskirts of Cleveland, what used to be empty lots and cow pastures with an abundance of nectar and pollen plants, are now residential areas. Bee pasture is being reduced and some hives of bees that were kept in back lots have had to be moved into the country.

Some hobby beekeepers still keep a few hives in locations surrounded by high fences or rows of trees that force the bees going to the fields to fly up and over. A few hobbyists have bees on flat roofs of garages where the bees are not likely to annoy neighbors.

Towns and cities do need honeybees to pollinate fruits and vegetables and it is hoped that enough hives may be maintained within city limits to perform the necessary pollination service.

It's Time for Fall Honey Promotion

AS OF THE 1st of August there are only 83 days remaining until National Honey Week which starts on October 24th and continues through the 30th. There is no better way to promote honey than for local beekeepers to tie in with a national advertising program.

What can you, the local beekeeper, do?

First, secure National Honey Week posters and honey promotional material from the American Honey Institute. Secondly, formulate a local advertising program using the posters. Contact banks, food stores, public utility display rooms, and other local merchants for permission to set up window displays. Permission can usually be obtained if an exhibit of live bees becomes the center

of the display. The layman is always ready to stop and gaze at an observation hive. That is the time to implant the value of honey through posters, literature, and a good sales talk. The latter comes naturally to the average beekeeper.

A third idea is to get the local press, radio and television stations behind you. Before September 1st, the program director of the radio or TV stations concerned should be contacted for any free time for an interview on bees. It is frequently possible to work into local variety shows. And on TV, an observation hive full of bees is a regular show stopper. Try it in your home town.

Oh, for the Life of an Editor

OF LATE there has developed a trend toward state beekeeping publications, and as a result, we have been approached about our attitude toward this development. Frankly, we and the other editors of the national journals with whom we have discussed the matter, are all for the idea. State publications are a valuable source of local news and management ideas and will be encouraged by the national journals.

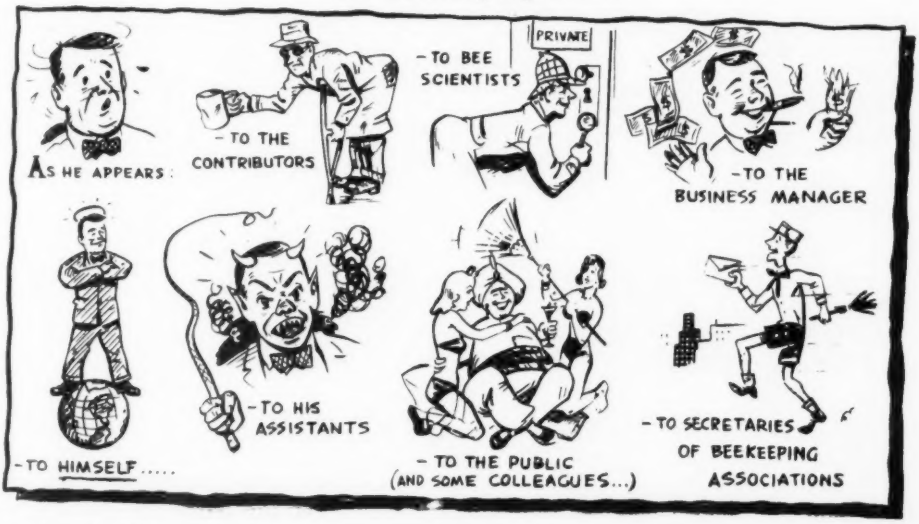
We wish to caution overzealous beekeepers from starting bee publications merely to have a "voice" in their state. A poor bee magazine is worse than none at all for it discourages good journalism in the area. It takes more than a typewriter, and a desire to write, to put out a journal and make it pay.

The present national journals have been accused of muffling ideas that do not benefit their publishers. Nothing could be further from the truth. Recently, we carried a series of articles that illustrated bee equipment not manufactured by our sponsor. The March 1955 cover of Gleanings is another example of our unbiased editorial policy as the equipment shown was again not entirely manufactured by our sponsor. We publish articles by scientists and laymen without bias.

We have been cooperating with the editors of local bee publications for years. Here are some of the States that publish either independent or state sponsored beekeeping journals: Connecticut, Rhode Island, New Jersey, Pennsylvania, Ohio, Michigan, Indiana, Illinois, Minnesota, Wisconsin, Kentucky, Tennessee, California, Wyoming, Arkansas, Colorado, Nebraska, and Missouri.

We hope that the remaining states will consider sponsoring publications so that beekeepers can get more local news which is prohibitive in national journals for lack of space. However, before proceeding, consider the cartoon below for there is a lot of truth in it.

The Beekeeping Editor


AS HE APPEARS
- TO THE CONTRIBUTORS
PRIVATE
- TO BEE SCIENTISTS
- TO THE BUSINESS MANAGER
- TO HIMSELF.....
- TO HIS ASSISTANTS
- TO THE PUBLIC (AND SOME COLLEAGUES...)
- TO SECRETARIES OF BEEKEEPING ASSOCIATIONS

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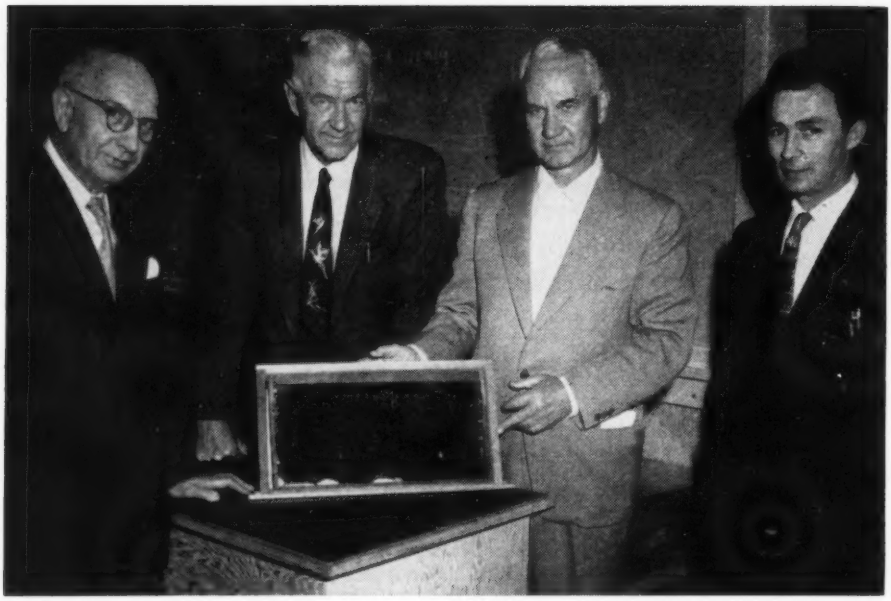
News

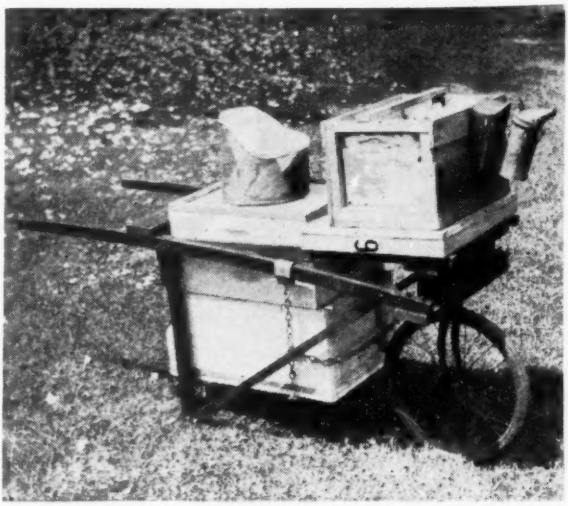


Four of the lecturers at the Bee Masters' Short Course held at the University of British Columbia, Vancouver, with a typical frame of A.F.B. under glass. Left to right: W. H. Hill, B. C. Pure Foods Dept., V. E. Thorgeirson, Assistant B. C. Apiary Officer; Dr. J. E. Eckert, University of Calif.; John Corner, Provincial B. C. Apiary Officer.

Bees ventilating a hive entrance.—Photo by Harold Doering, Kirchseeon, Ger.

reel

An exhibit of the Worcester County (Mass.) Beekeepers' Association. Honey donated to this exhibit was sold and the proceeds were used to send a child to nature training school sponsored by the Worcester Natural History Museum. Standing by the exhibit is Mr. John More (left), and Mr. Karl Schur on the right.—Photo sent by B. W. Richardson, Worcester, Mass.



Handy Apiary Wheelbarrow

This handy wheelbarrow developed by George L. Jeffers of Glen Allen, Va., will carry everything from extra supers to smoker fuel.
(We hope readers will send in photos of their labor-saving devices.)

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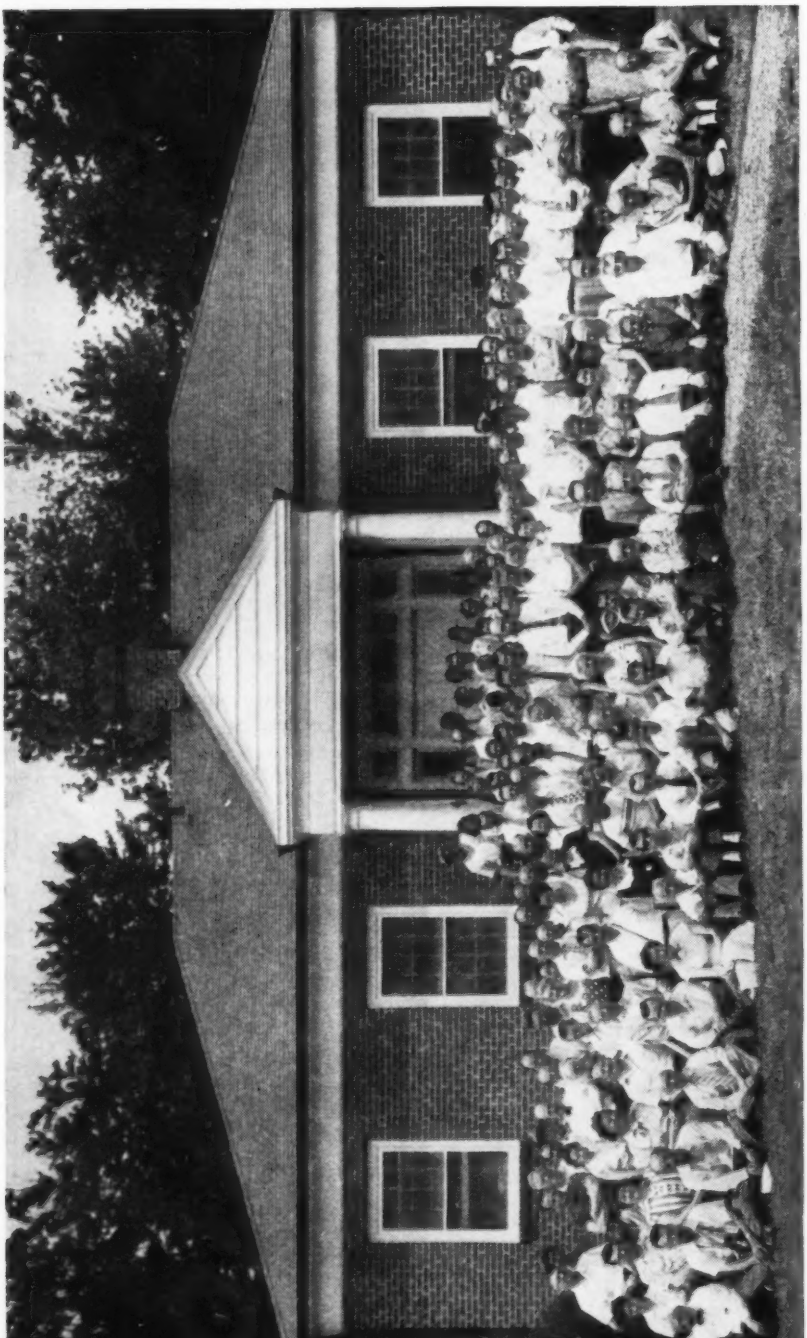
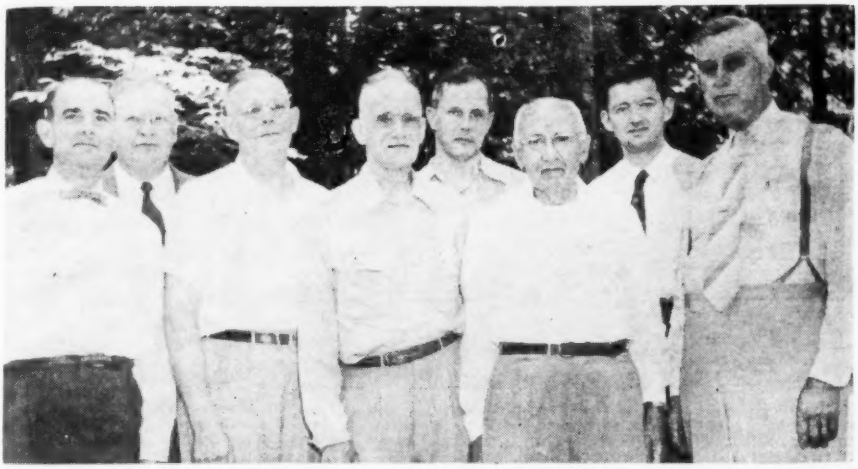


Here are some of the beekeepers who attended the first meeting of the Eastern Apicultural Society.—Photo by the Univ. of Md., Press Ser.

New beekeeping society formed

WALTER BARTH, Associate Editor

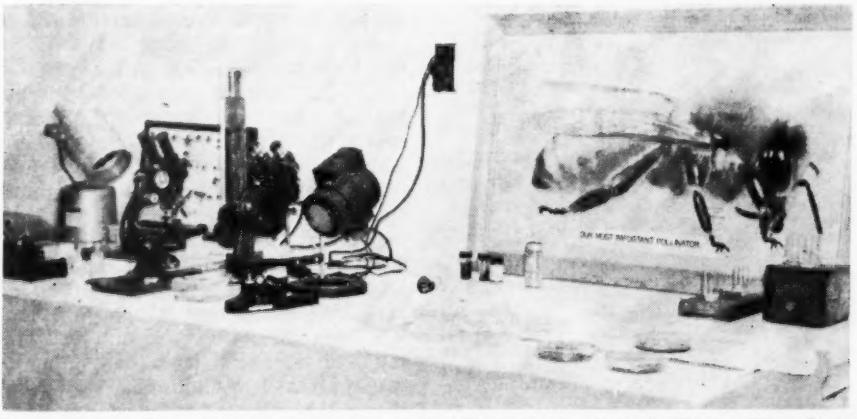


They came from far and wide. L. to r., W. K. Davis, Publicity Manager of the Eastern Apicultural Society; H. L. Kelly, president of the Maryland Beekeepers' Association; Francis Gravely, N. Y.; R. B. Swan, Maine Apiary Inspector; Robert Olson, University of Maine; Fred Haessler, Ohio; Roger A. Morse, State Entomologist of Florida; and Paul Holcombe, Chief Apiary Inspector of New Jersey.

NEARLY 250 beekeepers from Maine to Florida headed for the University of Maryland on June 15 for what turned out to be a very historical meeting. The result of their travel was the formation of the Eastern Apicultural Society.

Representatives from 14 states and the District of Columbia were on hand to elect J. Gaston Levitre of Rhode Island as the first President of the new Society. This was a just reward for the time and effort put into the formation of the meeting by the Rhode Islander. Justifiably acknowledged for his efforts too was William K. Davis of Rhode Island, who was named the Publicity Manager. It was obvious to all that Mr. Davis is just the right man to publicize the next meeting of the Society that is tentatively scheduled for the University of Rhode Island in 1956.

Other elected officers are Henry Poole, Mass., first vice president; Roy



Display of the Bee Culture Laboratory of the U. S. Dept. of Agriculture. Here it was possible to see the micro-organisms responsible for various bee diseases. The display was attended by Microbiologists, Melvin Abramovitz and Albert S. Michael of Beltsville, Md.

XUM

U. S. Beekeeping Specialists. L. to r. W. J. Nolan, Head of the Section of Bee Culture Research; Albert S. Michael and Melvin Abramovitz, bee disease microbiologists; Jay C. Keller, Editor of the U. S. Semi-Monthly Honey Report; Miss Julia Merrill, Librarian of the National Beekeeping Library at Beltsville, Md.; James I. Hambleton, Chief of the Division of Bee Culture and Biological Control; and Harold Clay, Honey Marketing Specialist of the U. S. Deptartment of Agriculture.

Stadel, Conn., second vice president; and Mrs. Maxine Manchester, Vermont, secretary-treasurer. Mr. George Abrams and Mr. J. I. Hambleton were both elected to the Advisory board. It will be their job to prepare a constitution and a charter for presentation at the 1956 meeting for approval by the body. At that time each state will elect a member to the Board of Directors.

Prizes were given to the winners of different contests. J. Gaston Levitre won a $25.00 Government bond as the first place winner in the photo contest. Rev. Carl J. Webb of Glastonbury, Conn., also won a bond for his prize winning honey slogan, "Honey—the sweet to eat". Both winners generously contributed their bonds to the treasury of the new beekeeping society.

Interest was high in the slogan contest and that made it more difficult for the judges, Mrs. A. W. Yates, Conn., Harold Clay, Washington, D. C., and this writer, to select a winner. After the best slogan was selected, the following persons were mentioned as runner-ups: Mrs. Emily W. Evans, N. J. with "Nature's sweet can't be beat. Eat honey!"; John C. Proctor, Mass., with "For a wealth of health eat honey"; and Henry Bausili, Va., with "Vitalize—bee honey wise".

Dr. Roger A. Morse, State Entomologist of Florida, won a prize for being the greatest distance from home although other Florida beekeepers were present. Here is the order of attendance by the different states: Maryland, Massachusetts, Connecticut, New Jersey and Rhode Island tied, Pennsylvania, District of Columbia, New York, West Virginia, Ohio, and finally, a general tie for Delaware, Maine, Vermont, and Florida.

J. Gaston Levitre of Rhode Island, the first president of the Eastern Apicultural Society.

Live and Learn

by Propolis Pete

JUST THINK how much beekeepers could increase their crops if they knew for sure just what was going to yield nectar, and when, and how much. I wish that I had the brains and facilities to do some research work on the subject. Apparently there are rules, but the rules must be something like a tumbler lock. Unless an assortment of conditions coincide at the same time, there is nothing in the blossoms. I have seen so many instances where I just scratched my head and wondered what was going on.

For instance, this past spring. My bees were going no place in particular when suddenly they started to pull in a terrific flow. From what, I'll never know. There were quite a few flowers blooming, but nowhere nearly enough to justify the bees for getting so much. All during this time I didn't see a bee working in the field. As they left the hive, they flew in a northeasterly direction, but there is nothing visible in that direction excepting a lot of water. The flow stopped as quickly as it started. The nectar in my observation hive was perfectly colorless, but the handful of bees there drew out and filled a shallow frame in those four days. What did it come from, and why?

The reverse of this experience is that as this is being written, every lawn is white instead of green, what with the clover blossoms. But the bees are barely getting enough to keep the hive going and put a little bit aside for me. I generally see something of the sort in the late summer, when the goldenrod starts to bloom.

There are maybe a hundred or more different varieties of goldenrod. In this climate, the first starts to bloom towards the end of July, and as the various varieties mature, continues until the middle of October. During this time the blossoms are covered with all kinds of insects from flies, butterflies, wasps, and solitary bees to the big hornets and spiders that live on the insects that they catch while working the blossoms. But no honey bees. Even when there are no spiders or hornets around. About the 20th of September, when these other insects are still around, all of a sudden the honeybees take over and generally pull in a flow that smells up the whole neighborhood at dusk. Why? If the bees were working some other source, it would be easy to assume that there was something else more attractive. Yet from the middle of September, they generally don't make, they take. They stay home in droves, and do the washboard act in front of the hive.

A couple of years ago, a patch of about 40 acres of woodland was cleared in order to sell lots for a development, about a half mile from here on a bee line. In order to make it look good, the owners limed it and sowed clover, which grew luxuriantly. There was a beautiful stand of blossoms long after the usual clover season here. These blossoms also were covered with every kind of bug that flies, crawls, or drifts, excepting honeybees. All during the time that it was blooming, my bees were busy keeping the front of the hive covered. It wasn't a case of not having room either. All hives were adequately supered with empty comb, completely empty even of bees, and had ventilation too.

THESE ARE cases where the bloom was in sight. Up above I tell of a case where they were getting it, and I couldn't find out from what. Here's another such case. When the weather is mild around Thanksgiving, I generally get a pretty good flow and the bees bring in oodles of pollen. The only thing blooming at the time is a little straggling of fall flowers around homes, plus quite a bit of wild radish in the fields that have been harvested of their regular crop. Presumably this flow is from that, but I have yet to see a bee working in the fields at that time. There is plenty of it within sight of the hives, and just to make sure, I have stopped to investigate every patch that I can reach from the roads. Still, I haven't seen a bee working on it. A possible explanation is that there is a big patch nearby that only a bee could

(Continued from page 511)

XUM

A Talk to Beekeepers

M. J. Deyell

Will Beekeepers Never Learn?

LAST WEEK while attending a Service Club dinner, I sat across from a beekeeper. Perhaps I should say he was a keeper of bees and not a beekeeper. When I asked him how his bees were coming on he said, "I haven't looked at my bees this season." Can you imagine that? It seems probable that his colonies must have swarmed. It is possible that some of his bees may be occupying bee trees in a nearby woods instead of storing some surplus honey for human consumption. One wonders just why some people keep bees, or try to.

Beekeepers Must Have an Objective

Apparently, many beekeepers lack an objective in beekeeping. As I may have said in past talks, successful beekeeping may be defined as producing and marketing the maximum crop of honey and wax at the minimum of expense.

In order to secure a maximum crop, we must have very populous colonies of bees at the right time, bees that are superior in honey-gathering qualities, and then give them ample storage space, which means putting on supers in time to make room for incoming nectar.

If Nature cooperates with us in furnishing adequate moisture at the right time, and if there is an abundance of honey plants available for the bees and favorable nectar weather we should secure a good crop.

It has been said that a good crop of summer honey usually follows a good spring honey flow. Possibly a part of the reason is that colonies during a good spring flow have a chance to build up to maximum strength in readiness for the summer honey flow. In this area the bees did very well on fruit bloom, dandelion, and yellow rocket, a plant that made its appearance in this section of the country recently. It blooms between fruit bloom and clover and bridges over a dearth of nectar that sometimes occurs.

Dangerous to Predict

On June 24th we had a visit from a commercial beekeeper who claims to have made a study of nectar plants. He said that day that we would not secure any basswood honey this year. That same day the bees began bringing in nectar rapidly and we were not sure, at first, where they were getting it. The following morning at 7:30 D.S.T., the bees loaded with nectar were falling over each other on the alighting board of our scale hive, walking up the entrance board, so full of nectar they could just waddle. I caught a loaded bee and squeezed its stomach a bit with my thumb nail to make it regurgitate some of its load and sure enough it was nectar from basswood.

The following day the scale hive gained eight pounds and the day after that 13 pounds. The scale hive gained 90 pounds between June 17th and July 11th. One morning during this flow, I visited the scale hive at 6:00 D.S.T. and found the bees busy bringing in nectar.

Michigan Bees Wake Us at 4:30 A.M.

SOME YEARS ago while keeping bees commercially in Northern Michigan, we had a large apiary of over 200 colonies not far from our dwelling house. One morning between 4:00 and 5:00 we were awakened by the roaring of bees going out after basswood honey. I happen to recall it was July 14th. There seems to be something about basswood nectar that spurs the bees on to their best efforts. It is a wonderful sight to watch the bees leave and enter hives.

Too Excited to Sleep

As the recent basswood flow was tapering we got two rains, about 2½ inches, that revived the clovers which sprang up almost over night in pastures and lawns. As I listened to this rain, I felt sure it would result in more nectar, and sure enough the flow was prolonged. It is a wonderful feeling to lie in bed listening to the rain pattering

on the roof, knowing it will mean more honey. It is a fact that I could scarcely get to sleep. Some of you experienced beekeepers will understand. The inexperienced may not. When I mentioned this to my daughter she said it would take more than a honey flow to keep her awake nights. It is such experiences as this that make beekeeping so interesting and intriguing.

More about Dividing Colonies —Then Uniting

As mentioned in a previous talk, I divided some strong colonies the last week in April, placing some of the divisions on tops of inner covers, giving front entrances. Some other divisions with young introduced queens were placed in hives alongside of the parent colonies. The divisions that were placed on top of inner covers and given young laying queens developed quite rapidly. During early June, some of these had brood in eight or nine combs. Some had to have a super above to contain incoming nectar. The colonies below apparently did not miss the brood that was taken from them in early April, about four or five combs. The divisions that were placed in hives alongside of the parent colonies also developed quite rapidly.

On June 17th the divisions on top of four colonies were united with the colonies below. Honey was coming in quite well that day. The uniting was done in the evening when the bees were full of nectar. I simply set each top division down onto a double brood chamber below, then placed supers above. I paid no attention to queens, assuming the young queens would be retained and the old ones disposed of. I did not see any sign of fighting among the bees.

YOU CAN imagine what monstrous colonies I had. The accompanying picture shows one of them in a 10-story hive, three standard bodies, and seven shallow supers. There were so many bees that they could not all get inside of the hive. Of course, the weather was extremely hot which accounted for some of the bees lying outside. Those colonies surely did bring

A sky-scraper colony 10-stories high. It piled in the honey.

in the honey. Some of you will ask if all of the supers in that pile were filled. As a matter of fact, I had to put on another shallow super after the picture was taken, but it was not completely filled.

I had four such skyscrapers, two of them nine stories high, one 10-story, and one 11-story. What worried me was that a high wind might come along and blow these skyscrappers over, or some mischievous youngster might give one of the hives a push in order to see it fall.

I had a beekeeper help me take off some of the supers that were filled and capped. These were placed over bee escapes on hives that were not so high. The fellow who helped me lift the supers down can testify that they were well filled, except the top super. I practice top supering instead of lifting off the filled and partly filled supers in order to put the empty super on the bottom of the pile. I gave up bottom supering long ago. It is too much work for me. If colonies need the comb space, they will go upstairs after it.

Regarding the divisions that are placed alongside the parent colonies, these have done quite well. As a matter of fact, both divisions will store almost as much surplus honey as the colonies that were divided early and then united at the beginning of the

flow. The one possible objection to the latter method is that an extra bottom and cover are required for the division alongside of the parent hive. Where the division is placed on top of the inner cover, no extra equipment is needed. I simply pushed the hive body back a fraction of an inch on the inner cover to provide a front entrance and nailed a strip along the back of the hive to cut off any air that might enter. On some of these top divisions, I double screened the openings in the centers of the inner covers so that the queens could not get together to fight. I used no queen excluders until near the end of the flow. On some others, I left the solid inner cover between the colony and the division on top. I could see no difference in results attained.

My main objection to operating the skycraper double queen colonies is that one has to use a step ladder or stand on a hive in order to manipulate the supers. There appears to be a limit to the height one can or should go in supering.

While operating bees in Western Ohio during 1938, we had a few colonies that were 10 high, that is, they were in 10 standard hive bodies. Some asked me why we didn't take the honey off. The flow was so rapid that the honey was not sufficiently well cured to come off so we had to put on more supers. The colonies referred to in Western Ohio were single-queen colonies. If we had operated two-queen colonies, we surely would have found it necessary to use guy wires to keep the piles of supers from tipping over. As a matter of fact, when I visited that yard one day I noticed one pile of supers leaning over like the Tower of Pisa. It was necessary to take down the pile and replace the hive stand which had rotted.

I may have more to say about dividing strong colonies in a later talk. It should be said that some single colonies occupy seven and eight supers. It seems somewhat difficult to make a test comparing single queen and double queen colonies because the quality of queens differ. As you know, some work has been done along this line by Farrar, Dunham, and others.

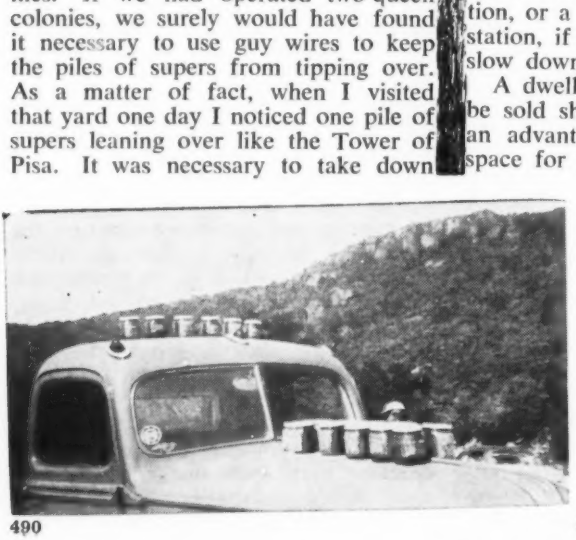
Selling Honey Locally

SOME OF you backlot beekeepers who have been fortunate enough to secure a good crop, will be interested in disposing of your crop. If you have in mind selling honey to customers in your neighborhood, erect a honey sign and place a small ad in your local paper announcing your street and number and the price you are asking for your honey. Be sure the honey is well strained and that the containers are clean, having attractive labels.

Roadside Honey Stands

Some beekeepers are logically located for selling honey at the roadside. There should be a space for erecting a fairly large honey sign at the stand where the honey is to be sold. There should be at least one approach sign at either side of the stand, perhaps one half mile away. A merchant in a town or city picks a good site for his store where many people pass by. The roadside honey seller must be located on a well-traveled road, a corner, intersection, or a bend in the road near a gas station, if possible, where cars have to slow down.

A dwelling house where honey is to be sold should be well kept up. It is an advantage also to have sufficient space for parking cars.



Sourwood honey being sold from an automobile at the roadside in the mountains of North Carolina. (Picture taken by Jack Deyell in 1953.)

Bee Facts

(A Digest of Scientific Research)

Edited by Walter Barth

Findings on Foulbrood:

SOME HONEYBEES have built-in resistance to the contagious disease American foulbrood. This bee-larvae disease often destroys entire colonies, yet in others where infection is introduced, it never develops.

USDA bee physiologists discovered that part of this reason for resistance resulted from the greater ability of some bees to filter out from nectar or honey in their stomachs the tiny disease organisms (**Bacillus larvae**) that cause American foulbrood. In colonies of such bees most of the disease organisms were eliminated outside the hive. Those that remained in the stomach and were deposited with the honey in the comb were too few in number to cause infection of bee larvae.

An equal, or perhaps more important, factor that helps explain the good health bees generally enjoy is their ability to keep a clean house. In most cases, healthy colonies are those that detect the presence of disease in its early stages. Sick bee larvae are cleaned from the cells and removed from the hive so quickly by such colonies that disease never gets a foothold. The poorer housekeepers, on the other hand, allow infectious material to accumulate—often in such quantities that it dooms the hive.

Cooperative tests carried out by the Agricultural Research Service of the U.S. Dept of Agriculture and the Wyoming Agricultural Experiment Station at Laramie showed that the physiologically resistant bees fed on a disease-laden sugar syrup were able to remove 72 to 84 percent of the **Bacillus** larvae in their stomachs. But bees from susceptible colonies removed only 43 to 74 per cent of the larvae.

The internal organ that does the job for the resistant bee is called the honey stopper, a clover-leaflike valve connecting the honey stomach with the proventriculus, another section of the stomach. This valve is lined with tiny hairs that are capable of filtering out small suspended particles, such as pollen and disease organisms.

Agricultural Research. Vol. 3, No. 5, Nov. 1954 Pg. 15.

Honeybees Increase Yields, Viability of Carrot Seed:

VALUE OF honeybees, as pollinators, in increasing the yield and viability of carrot seed has been established through cooperative research by the U. S. Department of Agriculture and the Utah Agricultural Experiment Station. Results indicate that it may pay seed growers to make use of honeybee colonies when carrots are in flower.

Prior to this study, carried out in 1954 at Logan, Utah, natural insect pollination was considered quite adequate for good carrot-seed production and for obtaining a high percentage of viable seed. Observation had shown that carrot flowers are normally visited by great numbers of many different insects. Lygus-bug damage was blamed as the major cause of poor viability.

Nevertheless, by caging carrots with honeybees, L. R. Hawthorn, G. E. Bohart, and E. H. Toole of USDA's Agricultural Research Service succeeded in boosting seed yields 28 per cent above those from carrots grown under normal, uncaged conditions.

Red Core Chantenay carrots, caged with honeybees, yielded seed at the rate of 771 pounds per acre—of which 740 pounds on the average was viable seed. Uncaged carrots — visited by more than 250 different species of insects, including bees—yielded at the rate of 601 pounds of seed per acre. An average of only 566 pounds of this seed was viable.

(Continued on page 507)

XUM

From the Field of Experience

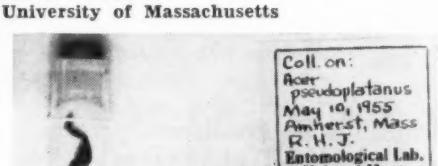
A Method for Displaying Pollen

R. H. JACKSON and F. R. SHAW
Department of Entomology, University of Massachusetts

DURING THIS past year both of us have been interested in the study of the identification of pollen. In the course of these investigations various techniques have been tested and evaluated. These will be the basis for an article at a later date.

One procedure was developed which appears worthy of special note. Students and other individuals frequently inquire as to the source of a pollen which the bees are collecting. Hodges, 1952, in her text, "The Pollen Loads of the Honeybee" has demonstrated the value of color in the recognition of pollen loads. The question arose, "How can the pollen loads be best preserved and displayed?"

A method which appears to be feasible is the following: Collect pollen-gathering bees on the blossoms. One must avoid selecting those which appear to have two or more colors of pollen in the same load since this would indicate different sources. The bees are killed by means of cyanide or by anesthesia. The hind legs with the pollen loads are removed and fastened



to a narrow slip of cardboard by means of colorless fingernail polish. The mounted leg and pollen mass is then placed in a gelatin capsule which is fastened to a piece of cardboard 3" x 1" with a fine piece of elastic cord which is knotted. (See accompanying figure.)

The data which is associated with the pollen can be written on a gummed slide label which is fastened to the cardboard strip. The finished mount can then be filed in an ordinary slide box used for the storage of microscope slides. These can be kept in the dark to avoid discoloration by bleaching. One of the advantages of this method is that it makes possible a rapid direct comparison of different pollen loads.

Trophies to be Awarded to Winners of National Honey Show

August 12-20, at Springfield, Illinois

THE AMERICAN Beekeeping Federation Trophy will be awarded the honey exhibit scoring the highest number of points in the show. In the event of tie scores, the judge will award the trophy to the exhibit considered the most outstanding. The judges' decision will be final.

Class A — WILLSON TROPHY
The R. B. Willson, Inc., 250 Park Ave., New York, N. Y. offers to the exhibitor of the sample of honey, scoring the highest number of points in Class A, a silver trophy which will be the permanent property of the winner.

Class B — WOODMAN TROPHY
The A. G. Woodman Company, Grand Rapids, Mich., offers to the exhibitor of the sample of honey, scoring the highest number of points in Class B, a silver trophy which will be the permanent property of the winner.

Class C — KELLEY TROPHY
The Walter T. Kelley Company, Clarkson, Ky., offers to the exhibitor of the sample of honey scoring the highest number of points in Class C, a silver trophy which will be the winner's permanent property.

Class D — SUPERIOR TROPHY
The Superior Honey Company, Los Angeles, Calif., offers to the exhibitor of the sample of honey, scoring the highest number of points in Class

D, a silver trophy which will be the permanent property of the winner.

Class E — DIAMOND MATCH TROPHY

The Diamond Match Company, Chico and Los Angeles, Calif., offers to the exhibitor of the sample of honey, scoring the highest number of points in Class E, a silver trophy which will be the permanent property of the winner.

Class F — A. I. ROOT TROPHY

The A. I. Root Company, Medina, Ohio, offers to the exhibitor of the sample of comb honey scoring the highest number of points in Class F, a silver trophy which will be the permanent property of the winner.

Class G — G. B. LEWIS TROPHY

The G. B. Lewis Company, Watertown, Wis., offers to the exhibitor of the sample of chunk honey scoring the highest number of points in Class G, a silver trophy which will be the permanent property of the winner.

Class H — SIOUX HONEY TROPHY

The Sioux Honey Association, Sioux City, Iowa, offers to the exhibitor of the sample of honey scoring the highest number of points in Class H, a silver trophy which will be the permanent property of the winner.

Class I — DADANT TROPHY

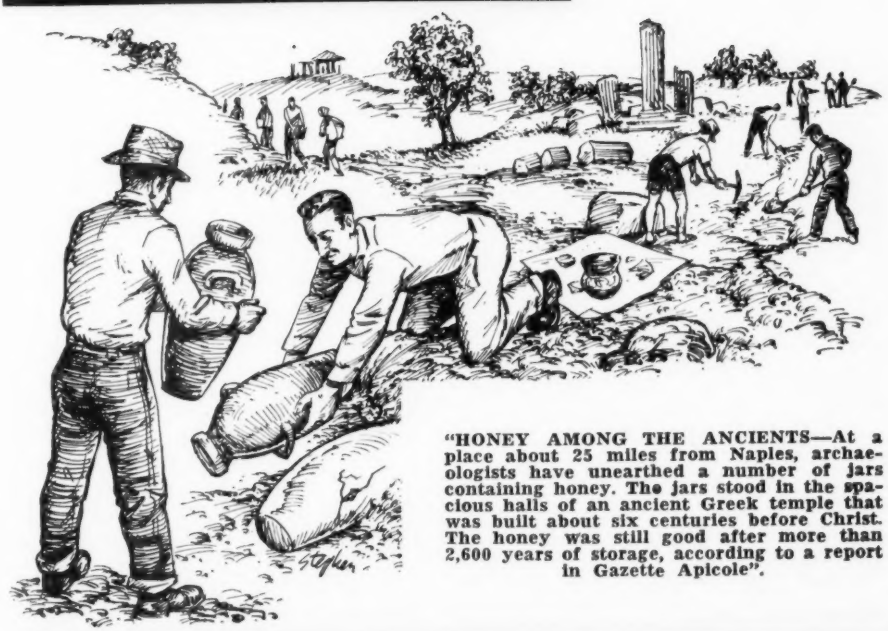
The Dadant Company, Hamilton, Ill., offers to the exhibitor of the sample of beeswax scoring the highest number of points in Class I, a silver trophy which will be the permanent property of the winner.

Class J — AMERICAN HONEY INSTITUTE TROPHY

The American Honey Institute, Madison, Wis., offers to the exhibitor scoring the highest number of points in Class J—a, b, c, a silver trophy which will be the permanent property of the winner.

Bee Lore

Illustrated by V. R. Stephen

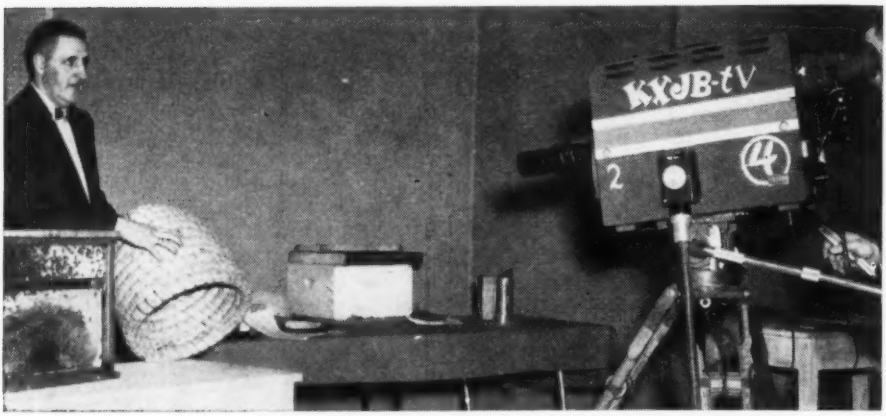


"HONEY AMONG THE ANCIENTS—At a place about 25 miles from Naples, archaeologists have unearthed a number of jars containing honey. The jars stood in the spacious halls of an ancient Greek temple that was built about six centuries before Christ. The honey was still good after more than 2,600 years of storage, according to a report in Gazette Apicole".

Boy Scouts and Beekeeping

Suggestions for Increasing Interest in Bees

RICHARD LEWIS POST
North Dakota Agricultural College, Fargo, N. D.



Dr. R. L. Post demonstrating bee equipment to a large TV Audience.

INCREASED PUBLIC interest in honey and honey products results in an expansion of the beekeeping industry. Let the contagious enthusiasm of youth be a means of having more families familiar with honey, thus creating more potential users. If beekeepers would take an interest in the Beekeeping Merit Badge requirements of Boy Scouts and serve as counselors they would be helping their own industry.

Practically every beekeeper lives in an area having Boy Scout Troops, 4-H Clubs, or Home Projects. If you will contact your local Boy Scout leader, County Agent, or Home Project leader and offer to help with their requirements on beekeeping, you might be surprised at the response you will receive. You can also advise your nearest Boy Scout office and state that you are qualified and willing to serve as a merit badge counselor.

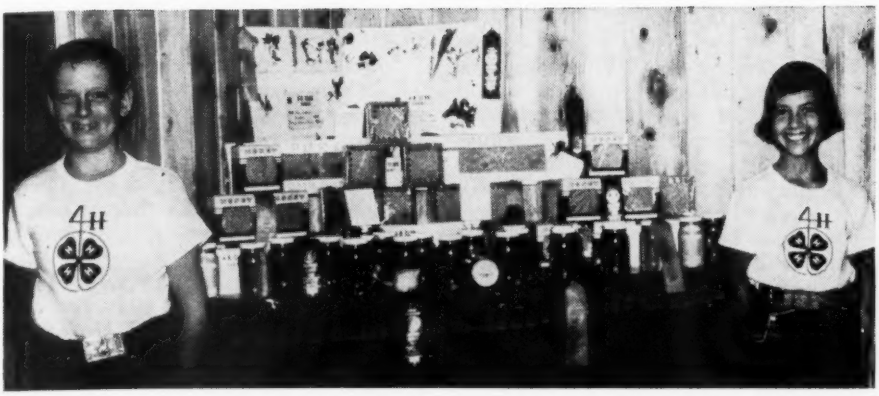
In Fargo no one was listed as a counselor for the Merit Badge on Beekeeping and for several years no Scout had applied for this merit badge. In a recent TV program on beekeeping I showed the merit badge and discussed the requirements. As a result, five boys have expressed interest in keeping bees and earning their merit badge next summer. The response in this city of 40,000 has resulted in my belief that in many other localities boys are anxious to keep bees and need only to know that someone is interested in helping them.

To obtain a Merit Badge for Beekeeping a Scout must:

1. Examine a colony of bees, remove the combs, find the queen, and determine the amount of the brood, number of queen cells, and the amount of honey in the hive.
2. Distinguish between the drones, workers, eggs, larvae, pupae, honey, wax, pollen, and propolis; tell how the bees make the honey, and where the wax comes from; and explain the part played in the life of the colony by the queen, the drones, and the workers.
3. Have had experience in hiving or artificially dividing at least one swarm. Explain the construction of the modern hive, especially in regard to the "bee spaces".
4. Put foundation in sections and fill supers with sections; and also remove filled supers from the hive and prepare the honey for market.
5. Write an acceptable article of not more than 200 words on the difference in honeys according to the flowers from which the nectar is obtained.

OR

Comply with the 4-H Club or Home Project Requirements in Beekeeping: These requirements are essentially the



Stan and Judy Pilcher of Littleton, Colorado, stand beside their bee project display that was set up at the Arapahoe County Fair.—Photo by Irene Scott.

same as those enumerated above with the addition of records of expense and production and displaying their products.

At the North Dakota Agricultural Experiment Station apiary we have one hive of bees set up for demonstration and training purposes as well as the essential equipment a beginner needs. Beginners in beekeeping can become accustomed to handling bees and assembling equipment under our supervision and learn the "know how" prior to receiving their own bees. Needless to state, the demonstration hive will be disturbed frequently and will not be used for experimental purposes or production records. Professional beekeepers can select a real gentle colony and use it for demonstration purposes.

Remember that when this generation of Boy Scouts or 4-H'ers grow up, those who have had fun with bees in their youth will select honey when passing by displays in groceries.

The writer will be interested in knowing how much response other beekeepers receive if they follow these suggestions. He would appreciate your writing and letting him know so that a summarization might be prepared next winter.

$100,000 Increase Assured for Bee Research

CLARENCE L. BENSON, Chairman
Research Committee, American Beekeeping Federation

THE RESEARCH Committee of the American Beekeeping Federation consisting of Clarence Benson, Chairman; R. B. Willson; Kriss Jensen; Henry Schaefer; and Alan Root appeared before the Senate and House Agricultural Subcommittees of the Appropriation Committees March 8-9, 1955 and requested additional funds for research on matters pertaining to bee culture.

The Research Committe requested $200,000 additional for research—

$100,000 for pollination and related studies,
50,000 for honey house and beekeeping equipment,
50,000 for honey.

The Research Committee chairman recently received a letter from Dr. A. H. Moseman, Director Crops Research, Agricultural Research Service, stating that $50,000 of increased funds would be available the first of July 1955 for pollination studies and $25,000 additional for research on the mechanical phases of beekeeping.

In addition to this we were assured by Dr. George Irving, Deputy Administrator, Agricultural Research Service, that in the near future $25,000 annually would be added to the amount now being spent on honey research at the Eastern Utilization Research Branch at Philadelphia. This totals $100,000 additional annually for research on matters in which the industry is vitally interested.

XUM

Rules for the Federation Honey Display Picture Contest

by ROBERT BANKER

(1) Pictures must be of actual displays of honey (not fairs) in retail stores.
(2) Prints must be 4 x 5 or larger and suitable for publication. Contestants may enter more than one print, but not more than five.
(3) Contest open to all beekeepers, hobbyist beekeepers, packers, dealers, and members of their families excepting officers and executive committee members of the Federation and members of their families. Include name and address of food merchant with each entry as he is eligible for duplicate prizes.
(4) No entries can be returned.
(5) Duplicate entries (pictures of the same display by different parties) will be judged upon the photography.
(6) Prizes:
1st prize—$50.00 in cash
2nd prize—$30.00 in cash
3rd—$20.00 in cash
Also, five consolation prizes of $5.00 each.
(7) Pictures will be judged by: Originality of the display, honey selling ability of the display, and photography.
(8) Contest closes on November 15th, 1955 and all entries must be postmarked not later than November 15th and sent to Mr. Robert Banker, Sec.-Treas., American Beekeeping Fed., Cannon Falls, Minn.
(9) Winners of the contest will be announced as soon as possible.
(10) All entries will become the property of the American Beekeeping Federation and the decision of the judges will be final.

The Rearing of Stingless Bees (Meliponidae)

Translated from the Portuguese
PAULO NOGUEIRA-NETO

Reviewed by Professor Wyatt A. Pickens, Language Department, Louisiana State University, University Station, Baton Rouge 3, Louisiana

THIS 280-page book about the stingless bees, Meliponids and Trigonids, of Brazil, is published by Chacaras and Quintas, C.P. 8034, Sao Paulo, Brazil. It sells for 80.00 cruzeiros (prob. less than $3.00 in our money). It is printed in Portuguese, but probably can be read by anyone with a fairly good knowledge of Spanish. It is claimed to be the first book ever published on the culture of the **Meliponidae.**

Mr. Nogueira presents his experiments with and observations on the stingless bees in the States of Sao Paulo and Minas Geraes, Brazil. He recommends that the bees should be reared and maintained in apiaries as a part of the Brazilian Agricultural economy. The book is the first of three that are to be published by Chacaras and Quintas on the subject of the stingless bees. One is to be w r i t t e n by Prof. J. S. Moure and one by Dr. W. E. Kerr. The author has been a student of stingless bees for many years and is recognized as an authority on the subject.

The author reveals a scientific, well-grounded knowledge of his subject. The bibliography, 6 pages, shows that Mr. Nogueira is familiar with American and English beekeeping. The book is an effort to encourage the production and proper care of stingless bees by Brazilians. The first few chapters contain a discussion of flower pollination, the importance of Hymenopterous insects as pollinators, and the economic factors involved. Then is presented how an apiary should be planned, and the best type of hive for the different species of stingless bees, **Melipona** and **Trigona.**

The author recommends that the small farmer or beekeeper capture swarms of stingless bees, or, if that is too slow, to buy colonies from the natives. Evidently there are professional honey hunters called "Meladores" in Brazil. These men rob honey from the nests of stingless bees in the trees and will furnish s w a r m s of bees upon request.

Considerable attention is given to the hives that are suitable for the stingless bees. Drawings, exact specifications, and dimensions for hives are

given so that the structure of the nests in trees is duplicated. Different hives are recommended for 16 different species of stingless bees.

A description and an analysis of some honey from stingless bees is included. A comparison with honey from **Apis mellifera** adapted from a table given by Mr. Nogueira follows:

Component	honey from Melipona quadrifasciata Lep.	honey from honeybee
	(percent)	(percent)
water	34.68	17.70
levulose	30.22	40.50
dextrose	28.28	34.02
sucrose	0.12	1.90
dextrin	6.34	1.51
ash	0.05	0.18
acids	0.27	0.08
not determined	0.04	4.90
pH	4.1	---

Considerable attention is given to the necessity of protecting the stingless bees from low temperatures during the winter at Sao Paulo (about 24°S. latitude). The author recommends that an outer case be placed over the hives during the winter. It appears that the stingless bees do not cluster in cold weather as our honeybees do. Apparently there would be only a few places in the United States where the stingless bees would overwinter unless they were kept warm by artificial means.

Additional chapters are given which discuss the wax, natural enemies, effects of insecticides and herbicides upon the bees, and methods of artificial feeding.

Tri-County Meeting a Success

THE LORAIN-Cuyahoga-Medina County Beekeepers' Associations of Ohio met at the Berea Fair Grounds on June 26th for a Field Day Meeting. It was a grand succcess with almost 200 in attendance.

At that time the summer honey flow was just beginning in this area and beekeepers were quite enthusiastic over prospects for a crop.

A picnic basket lunch at noon was enjoyed, after which a worthwhile program got underway. Dr. W. E. Dunham of Ohio State University spoke on recent changes in honey plants in Northern Ohio. This change has come about rather gradually and during recent years beekeepers in the western part of the state have secured a midsummer flow from various sources such as red clover, alfalfa, lima beans, and ladino clover.

Seymour Bailey, State Apiarist for Ohio acted as moderator of a panel consisting of Dr. Dunham, Jack Deyell, and Walter Barth, who discussed and answered questions concerning problems in beekeeping.

Harry J. Vandenberg of LaGrange, Ohio, secretary-treasurer of the Ohio State Beekeepers' Association was master of ceremonies.

Various contests were held. Lucille Temple of Brecksville, Ohio, won the honey queen contest and will compete later with winners of contests held at summer regional meetings in various parts of Ohio.—M. J. Deyell.

Lucille Temple, Brecksville, Ohio

Let's talk about honey plants

HARVEY B. LOVELL, University of Louisville

CANADA THISTLE (**Cirsium arvense**) blooms in July and August across most of the northern states and southern Canada. Unlike most of the thistles, it has numerous small clusters of purple flowers with tubes short enough for honeybees to collect the nectar easily. Canada thistle produces nectar abundantly and bees store up a fine, white honey which is mild and popular. Actually, this thistle is a pernicious weed, which was accidentally imported from Europe and became abundant in grain fields as well as along the roadside, in old pastures, and odd lots.

According to H. A. Scullen there are 50,000 acres of this prickly thistle in Oregon where it is an important source of both nectar and pollen. With the advent of weed-killing sprays, this plant has become much reduced in abundance in many areas.

From **Jonesburg, Missouri,** I have recently received an interesting shrub-by plant from **Herbert S. Wilson.** He writes, "I am sending you some flowers and leaves from a flowering shrub which I wish you would identify for me. This shrub seldom grows over six or seven feet tall and blooms in May. The flowers are very fragrant and much visited by bees. They seem to get both honey and pollen from the flowers. This shrub will grow only in moist rich soil along creeks, etc. Please let me know both the common name and the Latin name."

Your shrub is false indigo (**Amorpha fruticosa**) also called cat-willow and river locust. It belongs to the legume family. This shrub is listed as a fair to good honey plant in several states, but I have not found anyone who has obtained enough surplus from it to describe the color and flavor of the honey. Anyone having such information please write me. False indigo is common on the banks of the Ohio River and other wet places in Kentucky and bees work it very heavily sometimes. It is reported to be especially common in Kansas and Nebraska.

Mr. Wilson also sends me a list of blooming dates for 17 species valuable for pollen or honey in his locality. I am pleased to see that he includes the technical name for each species. Quite a few of my correspondents ask for the scientific as well as the common name.

Common names are so hard to identify in many cases. The same common name may mean two entirely unrelated plants in different parts of the country. It is always possible for a beekeeper to learn the scientific name by taking specimens to beekeepers' meetings where there is nearly always some botanist present, or by sending the specimen to the state university, or asking your county agent. The more unusual the plant, the more the scientific name is needed.

When pressing plants, put them between two blotters and place several heavy books on top. Change the blotters for dry ones at the end of 24, 48, and 72 hours. Plants dried rapidly under pressure do not loose their colors, or shrivel up. The more pressure placed on the plants, the flatter the dried specimens will be.

Mr. Walter C. Page writes from Lake City, Florida, and asks, "Am enclosing two specimens of honey plants. Is the large sample summer titi (**Cyrilla racemiflora**) which causes purple brood? It grows here as a large bush or small tree about 15 to 20 feet tall." Yes, your specimen is summer or black titi. There has been considerable argument over the cause of purple brood.

Robert Foster, retired inspector, told me that he had never found this brood disease anywhere except where summer titi was in bloom. It causes the pupae and larvae to turn purple, but some normal bees may develop.

Pennsylvania. An increasing number of beekeepers are planting honey plants on their waste land, and around their homes for shade and ornament. **Albert Reiner** of Parryville writes that among the trees and shrubs which he has planted most "are sourwood, linden, and Russian olive. They have bloomed several summers, but the past summer (1954) was so very dry here that they did not give much honey. My bees work them very hard."

Haseman Gets Honorary Degree

Left to right: Byron R. Elliott, Boston; Secretary of State, John Foster Dulles; Dr. Leonard Haseman.

DR. LEONARD HASEMAN, University of Missouri Entomologist, whose research made possible control of foulbrood as a bee disease, received the honorary degree of Doctor of Science at June 13 commencement of his Alma Mater, Indiana University.

The University of Missouri Entomologist was one of three honored by the Hoosier State University. Receiving honorary degrees with Dr. Haseman were Secretary of State John Foster Dulles and Byron K. Elliott, executive vice president of the John Hancock Mutual Life Insurance Company of Boston.

The citation accompanying the Doctor of Science conferred by President Herman B. Wells of Indiana was as follows:

"Leonard Haseman, teacher, scholar, scientist, member of a family whose record is unique in the annals of this University, on this campus more than a half century ago, you began your preparation for an arduous life of research that has contributed immeasurably to the well being of the human race."

Dean Ralph E. Cleland of the University's Graduate School in presenting Dr. Haseman for the degree described him as "one of the leaders in the constant struggle to keep one step ahead of our chief competitors, the insects" and added that "thanks to such men as he, we are still able to eat."

Dr. Haseman, Dean Cleland pointed out, did much to bring under control the San Jose scale, a menace to fruit orchards; is widely known for his work on the Hessian fly which at one time was a serious threat to the nation's wheat crop, and has worked on a great variety of other insect pests including the bag worm, leaf hoppers, cinch bug, corn borer, and coddling moth.

A native of Linton, Indiana, Dr. Haseman was graduated from Indiana University 50 years ago and later received his Master's Degree from the University as well as his Ph.D. degree from Cornell University. He retired last year as head of the department of entomology of the University of Missouri, a post he had held for 46 years, the longest tenure of such an office in the history of that university.

Montgomery Goes to the Arctic

Purdue University entomologist B. E. Montgomery has received a subcontract from the Arctic Institute of North America for a one month study of the ecology of bumblebees in the far north. Montgomery's investigations will originate from the Arctic Research Laboratory at Point Barrow, Alaska, 300 miles north of the Arctic circle.

Prof. Montgomery will study the activities of bumblebees during the short Arctic summer, especially the kinds of flowers from which they gather nectar and pollen, and the development of colonies.

En route to the Arctic Laboratory, Prof. Montgomery will stop briefly at the Alaska Experiment Station near Anchorage, and travel overland to Fairbanks with the Experiment Station entomologist. During this visit he will confer with the Alaskan entomologist and plant breeders on the pollination of alfalfa and the activities of bees in the subarctic areas of southern and central Alaska.

Just News

The **Berks County Beekeepers' Association** will hold their summer meeting on August 13, 1:30 P.M., at the Ontelaunee Orchards, Route 122, Leesport, Pa. (nine miles north of Reading). The program will include as guest speakers—Paul Holcombe, Sup't. of Bee Culture from Lambertsville, N. J.; Prof. Edwin J. Anderson, W. W. Clarke, both of Penn State College; and the Penna. Bee Inspector. There will be contests with prizes awarded. Honey ice cream will be furnished by the Association. An invitation is extended to all beekeepers and their friends.—S. B. Althouse, Sec.

The August meeting of the **Middlesex County Beekeepers' Association (Mass.)** will be held on Saturday, August 27, at the home of Mr. and Mrs. Alymer Jones, 34 Chandler Road, Malden, Mass. Our association was well represented at the meeting of the Eastern Hobby Beekeepers held at the University of Maryland June 17 and 18. Those who attended felt that the meeting was very successful and they look forward to another meeting of this group in 1956. —L. C. Proctor, Sec.

The **Westchester County Beekeepers' Association** will not hold an August meeting. Many of our members will be on vacation at this time, so it was decided to eliminate the meeting for this month. In September, there will be a joint meeting in the Bronx, so let's make this a good turn-out. Further information will be published. —Mrs. Alfred Roth, Pub.

The annual summer meeting of the **Vermont Beekeepers' Association** will be held at the honey plant of Charles Mraz in Middlebury, Vermont, on Saturday, August 27.

Charles Mraz is the largest beekeeper in the New England states, and you will want to look over his new and well-arranged honey house. Of special interest is his system of cutting, drying, and packing his individual serving comb honey packages.

Maxine Manchester will tell us about the Eastern Beekeepers' Conference in Maryland, which she attended in June. Meeting begins at 10:00 A.M. and lasts until about 4:00 P.M. Bring samples of your honey for competition for prizes and don't forget your picnic lunch.—Clyde N. Wood, Sec.

The August meeting of the **Suffolk County Bee Club** will be held at the apiary of John Frank, Patchogue Road, Holbrook, L.I., N. Y., at 2:30 P.M., on Sunday, August 21. Mr. Milton H. Stricker, secretary-treasurer of the New Jersey Beekeepers' Association will speak at the meeting on "Improvements in My Beekeeping". It is also hoped that Mr. Jack Matthenius, New Jersey State bee inspector, will be at the meeting and speak briefly. Several colonies, including the one belonging to the Club, will be examined.

The September meeting of the Suffolk County Bee Club will be held at the bee yard of Mr. Robert Greiling, Centerport, L. I., N. Y., on Sunday afternoon, September 18th, at 2:30 P.M.—H. D. Wells.

Beekeeping Short Course to be Held at Penn State University.—A beekeeping short course will be conducted at the Pennsylvania State University, State College, Pa., from August 22 to August 26, 1955. During this short course, one-half of each day is given to lectures on the theory of beekeeping, the other half is devoted to the practical application of bee management.

Any persons 16 years of age or older who are interested in beekeeping may attend this short course. For more information or for an application to enroll in the course, write to Director of Short Courses, College of Agriculture, The Pennsylvania State University, University Park, Pa.—David R. McClay, Director of Short Courses.

Palmetto State Beekeepers' Short Course
Clemson College, Clemson, S. C.
August 16-17, 1955

Tuesday Morning, August 16
Room A-203, New Agricultural Center

8:30- 9:00 Registration
9:00- 9:10 Welcome, T. W. Morgan
9:10- 9:30 Feeding Bees, L. J. Jordan
9:30- 9:45 Honey Plants & Their Abuse, C. G. Ellison
9:45-10:00 Marketing the Honey Crop, L. C. Hamilton
10:00-10:20 Handling the Honey Crop, W. H. Purser
10:20-10:40 The Importance of Good Queens, L. H. Little
10:40-11:00 Questions and Answers

Tuesday Afternoon, August 16
1:30-4:30

W. C. Johnson, David Dunavan and W. H. Purser in charge; College Apiary near Junction of Highways 123 and 76.

Demonstrations of the following:

1. Bee Diseases
2. Smoker Lighting Contest
3. Fumigation of Stored Combs
4. Assembling Equipment
5. Transferring
6. Making an Increase with the Aid of Laughing Gas

Wednesday Morning, August 17
Room A-203, New Agricultural Center

9:00- 9:20 How to Produce Honey from Package Bees, Garnett Puett
9:20- 9:40 Scale Hives and Honey Flows, David Dunavan
9:40-10:00 Summer and Fall Management, W. C. Johnson
10:00-10:20 Topic to be Chosen. W. E. Neville
10:20-10:40 Beginners Hour, Clemson Beekeeping Staff
10:40-11:00 Questions and Answers

The **Southern Tier Beekeepers'** picnic will be held on Sunday Aug. 21 at the Donald Greenman home in Glen Aubrey on Route 26 between Endicott and Whitney points. Sandwiches or rolls, covered dish and your own table service. Dr. William Coggshall of Ithaca will be guest speaker.—H. B. Webb, Sec.

The **Washington State Beekeepers' Association** will hold its annual potluck picnic at Ohanapecosh Hot Springs Camp Grounds, August 6, at 12 noon. Ohanapecosh Hot Springs is 12 miles north of Packwood or 17 miles south of Chinook Pass. These camp grounds are in the southeast corner of Rainier National Park. — Mrs. Carl N. Van Wechel, Sec.

The annual summer meeting and picnic of the **Empire State Honey Producers' Association** will be held Saturday, August 13, at beautiful Emerson Park on Owasco Lake, Auburn, N. Y. in the large pavilion. There are plenty of picnic tables, fire places, amusements for children and grownups, including swimming. A restaurant is nearby for those not wishing to bring their lunch.—Mary Cary, Sec.

The **R. I. Beekeepers' Association** will hold its monthly meeting on Sunday August 14 at the home of Mr. O. Everett Janson. Mr. Howard A. Pike, Apiary Inspector will demonstrate use of queen rearing gadgets and procedures. Refreshments will be served by the Association.

Annual Beekeepers' Field Day
Purdue University, Lafayette, Ind.
August 17, 1955

9:30-11:30 a.m.
Assembly Room, Agricultural Building
Opening Address—Prof. J. J. Davis, Head of Dept. of Ent., Purdue
Colony Morale and Swarm Control —John M. Amos, Virginia Polytechnic Institute, Blacksburg, Va.
Bees in the Far North—B. E. Montgomery, Purdue
11:45 a.m. Columbian Park, Lafayette
Old Fashion Basket Dinner (Bring a big basket of food and let's all eat together)
1:30-4:00 p.m. Purdue Agronomy Farm, Rd. 52, 5 miles north of W. Lafayette
Gilbert Perigo, Chief Apiary Inspector, Indianapolis, presiding
The Beekeeper's Problems in Pollination Work—J. M. Amos, Blacksburg, Va.
Inspection of Pollination and Plant Breeding Experiments—Staff, Entomology and Agronomy Departments, Purdue
Inspecting and Handling Bees—Indiana Deputy Bee Inspectors

American National Honey Show

Dont forget to visit the show if you are in or anywhere near Springfield, Illinois, August 12 to 20, during the State Fair. You will see a worthwhile exhibit of extracted honeys in different stylles of containers, also comb honey and beeswax.

U. S. honey packers and dealers have agreed on assessing on voluntary basis one cent per can at handler's level to be equaled by one cent per can at producer's level. Funds derived will be spent by the Honey Industry Council of America for promoting the increased use of honey.—R. C. Stone, Sec. National Honey Packers' and Dealers' Association.

Correction: On page 407 of July 1955 Gleanings top of page, 18° F. should read 180° F.

Buy and Sell

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 15c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding publication.

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WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Onsted, Michigan.

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FOR SALE — CLOVER COMB HONEY, ready about July 15. Write for prices. C. W. SCHRADER, WATERVILLE, N. Y.

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BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to seel for cash only or on C.O.D. terms except where the buyer has thoroughly established his credit with the seller.

CASH for your comb honey and all types extracted. Send sample and best price. Buckeye Honey Co., 3930 No. High St., Columbus 14, Ohio.

CASH for Beeswax. Write as to quantity and we will quote price. Muench-Kreuzer Candle Co., Inc., Syracuse, N. Y.

HONEY WANTED — All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 2613 South Yates Ave., Los Angeles 22, California.

WRITE FOR Shipping tags and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 per cent saving. Walter T. Kelley Co., Clarkson, Kentucky.

HONEY WANTED, all grades in 60's. Mail samples, advise quantity, best price. A. I. Root Company of Syracuse, 1112-14 E. Erie Blvd., Syracuse, N. Y.

WANTED — White extracted or comb honey. Send sample. Millersport Honey Company, Millersport, Ohio.

WANTED—Light amber-clover and fall-flowers honey. Cloverdale Honey Company, Fredonia, N. Y.

BEST CASH Deal for your honey (any grade) and beeswax. Alexander Company, 819 Reynolds Road, Toledo, Ohio.

BEESWAX WANTED — Highest prices paid in cash or trade for bee supplies. The A. I. Root Co., Medina, Ohio, Council Bluffs, Iowa, San Antonio, Texas.

WANTED, chunk comb extracted honey. Mail samples and prices. Stoller Honey Farms, Latty, Ohio.

WANTED—All grades of extracted honey. Send sample and price. Deer Creek Honey Farms, London, Ohio.

WANTED—Honey in 60's. Send sample and price. Lloyd E. Allen, Tipton, Mich.

WANTED — All kinds extracted honey. Top prices. Tontz Honey Farm, Elsinore, Calif.

WANTED—Basswood honey, new crop in 60's. Odell F. Burch, 610 N. Main St., Chincoteague, Va.

FOR SALE

WRITE FOR CATALOG — Quality Bee supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies and Comb Foundation. Onsted, Michigan.

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FOR SALE: Complete equipment for 150 colonies. Reasonable and terms if desired. Write Box 45, Caro, Mich.

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THREE-BAND Italian Queens, 80c; 20 or more, 75c. Luther Pickett, Efland, N. C.

CAUCASIAN queens, balance season, 1 queen, $1.00; 25 or more 75 cents each. Lewis & Tillery Bee Co., Greenville, Ala.

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Answers to Picture Quiz, page 478

1. **S. Joaquin Watkins**, Fruita, Colorado. Vice president of the American Beekeeping Federation and Chairman of the Nat. Honey Marketing Committee.
2. **Dr. C. A. Jamieson**, Ottawa, Canada. Head of the Bee Culture Research Station of the Canadian Dept. of Agriculture. "Jaimie", as Dr. Jamieson is known to his many friends, is a well-known visitor to the U. S. He and his staff have completed some outstanding research on bee diseases.
3. **D. R. Robertson**, Provincial Apiarist of Manitoba, Canada. A leader in western Canadian affairs.
4. **Glen Gibson**, Minco, Oklahoma. Former president of the American Beekeeping Federation. Owner of the Clover Bloom Honey Company.

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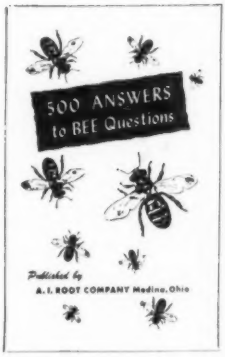

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BEE FACTS

(Continued from page 491)

When all insects were excluded from flowering carrots, seed yield was reduced to only 100 pounds per acre and seed viability was reduced about 30 per cent—proving that self-fertilization cannot be depended upon for economic yields of viable seed. Only 67 pounds per acre of this seed was viable—despite the absence of lygus bugs and other destructive insects.

News Release. Office of Information. U.S. Dept. of Agriculture. June 1955.

We Regret the Delay . . . .
. . . in delivering some orders.

Please accept our word that it was because of unseasonable weather. Conditions were good at the time of the freeze on March 27th when all possible source of pollen and nectar was killed and at this date May 6th we have seen our first new nectar of any consequence.

This condition seems general and we could not secure bees from other shippers or honey producers.

Queens are now available. Write for particulars and prices.

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BEEKEEPING IN MINNESOTA

(Continued from page 465)

building value and beautiful to look at.

State laws make it mandatory that all parties responsible for public and private lands shall cause to be destroyed all weeds which grow on these properties and may menace public health, public roads, crops, livestock and other property. The present weed eradication program can develop and be a benefit to beekeepers by eradicating plants that do not produce nectar. In some instances at least clovers will need to be reseeded in the areas after the clean-up has been completed.

Present administrative programs endeavor to protect existing clover plantings by close supervision of spraying. This can eliminate the possibility of promiscuous use of spray equipment by untrained personnel and thus avoid destruction of valuable clover stands and prevent waste of expensive material. Roadside management could easily be our most valuable pasture development program of the future.

Since 1907 the State of Minnesota has had a beekeeping law. **C. D. Floyd** is in charge of the division of apiary inspection, which also conducts a considerable extension service throughout the state. **M. H. Haydak** is in charge of teaching and research in apiculture at the state University. The main field of research has been in the bee biology and nutrition, food value of honey, swarm prevention and wintering. As a result of extensive research a pollen substitute formula was devised which is widely used throughout the United States. There is also extensive research on the role of honeybees in pollination of various agricultural plants conducted by **F. G. Holdaway** and his staff of co-workers. **T. A. Gochnauer** is engaged in an investigation of causes and control of bee diseases. He works in close cooperation with the Division of the State Apiary Inspection.

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HISTORY OF BEEKEEPING

(Continued from page 472)

1950 A.D.—Sardar Singh (India) investigated further the localization of bees to small areas and the duration of their constancy to such areas. He reported that individual bees devoted whole visits to an apple tree and returned for later visits to the same tree. Other bees worked between two trees. (Singh completed this research at Cornell University).

(The End)

MEET THE CHAMPIONS

(Continued from page 476)

where Don Arturo's charming and lovely wife had loaded the record player with beautiful music and where a crackling fire in the huge fireplace lent an air of warm hospitality to the chill of the mountain night.

It seems that some months before, the German Government had had a trade exhibition in Mexico City at which many German products were displayed. At the show's end, there were some 50 cases of champagne left that were bought by our hosts. Don Arturo brought out a fine cold bottle of this and soon thereafter the conversation was on Royal Jelly and the feeding of larvae. Dr. Speck, in commenting, mentioned how they get their food by absorption through the skin (diffusion). We, priding ourselves on our scientific training in bees at Cornell in our youth, entered a prompt and positive disclaimer. They quoted Professor Zander of Germany, chapter and verse, and their own observations in defense.

From there we went on into discussion of the physiology of the bee which revealed how profound their application to bees and beekeeping had been. This enthusiasm, plus intelligence, plus energy, plus studiousness spells out the formula for their success.

The weariness of the long, hard day disappeared with the lively conversation that always develops when people who love bees get together. Finally Mrs. Wulfrath chased us all to bed. It was 2:30 A.M.

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REMOVAL OF BEES FROM BUILDINGS

(Continued from page 463)

opening. The bees from the swarm can fly freely out through the screen cone, but are unable to return to their old nest, and will enter the new hive prepared for them. It will require about a month for the brood in the old combs to hatch and by this time most of the bees will be in the hive. Now remove the screen cone and leave the hive in position for a week or more. If there is no honeyflow in progress, the bees from the strong hive will rob out the old swarm combs. If the swarm was a large one, considerable honey could be obtained from the old combs, so the beekeeper may need to provide additional super space for the hive bees to store this honey. After the honey is removed, carefully seal off the entrance to the old nest so future swarms cannot establish themselves in the same location.

The hive on the platform should be removed in the evening when all the bees are inside. To avoid the possibility of the hive bees returning to their original location and making a further nuisance of themselves, the hive should be taken at least three miles away.

LIVE AND LEARN

(Continued from page 487)

find, or a beekeeper with a helicopter, but one would think that I'd see a stray once in a while.

In some locations, farmers pay beekeepers to put hives in lima bean fields. They tell me that the bees work them greedily. Well, around here, limas are an important secondary crop, and various plantings will bloom from around the first part of July up into the middle of September, depending upon when it was planted and how it was irrigated. There is plenty of bloom available during the dead season for me, but it is still the dead season. I don't even see the usual assortment of flies and so forth, only once in a great while a bumblebee will be working on the blossoms.

Don't get the idea that I am crabbing about this. I'm not. I'm just curious, and wonder what I could do if I knew the answers. I don't do too bad as it is. My lifetime average over 20 years would be about 50 pounds to the colony, and I have gone as high as 185 pounds for a single colony that for some mysterious reason put up such a crop when all the other hives were barely making a living.

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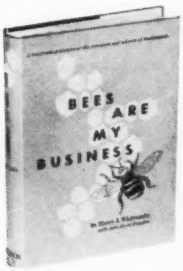

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